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S. HRG. 114–658, PT. 1

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

HEARINGS

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED FOURTEENTH CONGRESS

SECOND SESSION

ON

S. 2943

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2017 FOR MILITARY ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CONSTRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF ENERGY, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR SUCH FISCAL YEAR, AND FOR OTHER PURPOSES

PART 1

THE FUTURE OF THE U.S. ARMY
U.S. PACIFIC COMMAND AND U.S. FORCES KOREA
AIR FORCE POSTURE
U.S. STRATEGIC COMMAND, U.S. NORTHERN COMMAND, AND U.S. SOUTHERN COMMAND PROGRAMS AND BUDGET
NAVY POSTURE
DEPARTMENT OF DEFENSE BUDGET POSTURE
U.S. CYBER COMMAND
ARMY POSTURE
F–35 JOINT STRIKE FIGHTER PROGRAM

FEBRUARY 11, 23; MARCH 3, 10, 15, 17; APRIL 5, 7, 26, 2016

Printed for the use of the Committee on Armed Services

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CONTENTS

FEBRUARY 11, 2016

	Page
THE FUTURE OF THE U.S. ARMY	1
Ham, General Carter F., USA (RET.), Chairman, National Commission on the Future of the Army; Honorable Thomas R. Lamont, Vice Chairman, National Commission on the Future of the Army; General James D. Thurman, USA (Ret.), Commissioner, National Commission on the Future of the Army; and Sergeant Major of the Army Raymond F. Chandler III, USA (Ret.), Commissioner, National Commission on the Future of the Army	4

FEBRUARY 23, 2016

U.S. PACIFIC COMMAND AND U.S. FORCES KOREA	39
Harris, Admiral Harry B., Jr., USN, Commander, United States Pacific Command	44
Scaparrotti, General Curtis M., USA, Commander, United Nations Command, Combined Forces Command, United States Forces Korea	61
Questions for the Record	106

MARCH 3, 2016

POSTURE OF THE DEPARTMENT OF THE AIR FORCE	115
James, Honorable Deborah Lee, Secretary of the Air Force	119
Welsh, General Mark A., III, USAF, Chief of Staff of the Air Force	138

MARCH 10, 2016

U.S. STRATEGIC COMMAND, U.S. NORTHERN COMMAND, AND U.S. SOUTHERN COMMAND PROGRAMS AND BUDGET	169
Haney, Admiral Cecil E. D., USN, Commander, U.S. Strategic Command	173
Gortney, Admiral William E., USN, Commander, U.S. Northern Command and Commander, North American Aerospace Defense Command	184
Tidd, Admiral Kurt W., USN, Commander, U.S. Southern Command	196
Questions for the Record	247

MARCH 15, 2016

POSTURE OF THE DEPARTMENT OF THE NAVY	259
Mabus, Honorable Raymond E., Jr., Secretary of the Navy	263
Neller, General Robert B. USMC, Commandant of the Marine Corps	281
Richardson, Admiral John M., USN, Chief of Naval Operations	290
Questions for the Record	327

Page

MARCH 17, 2016

DEPARTMENT OF DEFENSE BUDGET POSTURE 343
Carter, Honorable Ashton B., Secretary of Defense; Accompanied by Honorable Michael J. McCord, Under Secretary of Defense (Comptroller) and Chief Financial Officer 348
Dunford, General Joseph F., Jr., USMC, Chairman of the Joint Chiefs of Staff 377
Questions for the Record 425

APRIL 5, 2016

U.S. CYBER COMMAND 455
Rogers, Admiral Michael S., USN, Commander, U.S. Cyber Command; Director, National Security Agency; Chief, Central Security Services 458
Questions for the Record 503

APRIL 7, 2016

POSTURE OF THE DEPARTMENT OF THE ARMY 507
Murphy, Honorable Patrick J., Acting Secretary of the Army 510
Milley, General Mark A., USA, Chief of Staff of the Army 519

APRIL 26, 2016

F–35 JOINT STRIKE FIGHTER PROGRAM 561
Kendall, Honorable Frank, III, Under Secretary of Defense for Acquisition, Technology, and Logistics 565
Bogdan, Lieutenant General Christopher C., USAF, Program Executive Officer for the F–35 Lightning II Joint Program 567
Gilmore, Honorable J. Michael, Ph.D., Director of Operational Test and Evaluation, Department of Defense 577
Sullivan, Michael J., Director of Acquisition and Sourcing Management, Government Accountability Office 592
Questions for the Record 623

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

THURSDAY, FEBRUARY 11, 2016

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

THE FUTURE OF THE U.S. ARMY

The committee met, pursuant to notice, at 9:53 a.m. in Room SD–G50, Dirksen Senate Office Building, Senator John McCain (chairman) presiding.

Committee members present: Senators McCain, Inhofe, Sessions, Wicker, Ayotte, Fischer, Cotton, Ernst, Tillis, Lee, Reed, McCaskill, Manchin, Shaheen, Gillibrand, Blumenthal, Donnelly, Hirono, Kaine, King, and Heinrich.

OPENING STATEMENT OF SENATOR JOHN MCCAIN, CHAIRMAN

Chairman MCCAIN. The Senate Armed Services Committee meets this morning to receive testimony on the findings and recommendations of the National Commission on the Future of the United States Army.

I am pleased to welcome General Carter Ham, General James D. Thurman, the Honorable Thomas Lamont and Sergeant Major of the Army Raymond Chandler.

Gentlemen, this committee is grateful to you for your many years of distinguished service and your leadership during the conduct of the National Commission's work. We are thankful for the comprehensive and timely report. Today, we hope to benefit from your recommendations.

The focus of this hearing is our Army and our soldiers. Their mission is unequivocal. It is to fight and win our Nation's wars. As Army Chief of Staff General Mark Milley said eloquently, the Army's "reason for being, our very reason for being, at the very core of what it means to have an Army is to win, and to win decisively, in ground combat against the enemies of our country so that American citizens can enjoy life, liberty, and the pursuit of happiness."

Through 15 years of war, our Army has been tested. Time and time again, our soldiers proved their commitment, courage, and determination. It is our duty to do our utmost to provide them with

the support they need and deserve. That starts by recognizing that our Army is still at war.

At this moment, 187,000 soldiers are deployed in 140 locations around the globe. They're fighting terrorists and training our partners in Afghanistan and supporting the fight against ISIL, all the while defending South Korea and reassuring our allies in eastern Europe. Yet, as the demands on our Army continue to increase, our support for our soldiers has not kept pace. In short, our Army is confronting growing threats and increasing operational demands with shrinking and less-ready forces and aging equipment. By the end of the next fiscal year, the Army will be cut down to 450,000 Active Duty personnel soldiers, down from a wartime peak of 570,000. These budget-driven force reductions were decided before the rise of ISIL or Russia's invasion of Ukraine. As the Commission notes, a regular Army of 450,000 is the minimum sufficient force necessary. We must be clear that when we minimize our Army, we maximize the risk to our soldiers. Those risks will only grow worse if mindless sequestration cuts are allowed to return and the Army shrinks to 420,000 soldiers. On the present course, we're running the risk that, in a crisis, we'll have too few soldiers who will enter a fight without proper training or equipment.

Given current operational demands, readiness must be the first priority of the Army. Yet, as our Army shrinks, readiness suffers. Just over one-third of the Army's Brigade Combat Teams are ready for deployment and decisive operations. I repeat, only just over one-third. The Army has no plan to return to full-spectrum readiness until 2021, at the very earliest. As the Commission's report makes clear, both the mission and the force are at risk.

Meanwhile, the Army is woefully behind on modernization. The Army must modernize for the harsh realities of 21st century warfare. Our soldiers must be trained and equipped for an increasingly diverse and complex range of threats. They must be able to win against peers in highly lethal combined-arms maneuver, near-peer in hybrid warfare conditions, and determined unconventional insurgents. Yet, our Army is essentially organized and equipped as it was in the 1980s. The main difference is that it's smaller. In fact, many key enabling forces, like artillery, armored calvary, engineers, air defense, chemical, biological, radiological, and nuclear response, and theater transport have been reduced to levels that compromise the Army's ability to field campaign-quality forces. Put simply, our ground force is not in balance. We're not sized with the adequate capacity or with key capabilities to give our soldiers what they need to win decisively. Part of that is the legacy of the Army's acquisition record, which former Army Secretary McHugh said, quote, "too often, a tale of failure, too many underperforming or canceled programs, too few successful fieldings of developmental designs, and far too many taxpayer dollars wasted." While we have struggled, adversaries such as Russia have been investing billions in modernizing their armies. The result is that America's capability advantage in ground combat weapons is not nearly as great as it once was.

Another challenge to the Army's balance has been its failure to operate as a total force composed of the regular Army, the Guard, and the Reserve. Yet, while the Army is intended to operate as one

force, the Commission identified major gaps, including a lack of focus on multi-component units, the absence of an integrated recruiting force, and the inability to manage pay and personnel across the entire Army with a single system. The Commission's recommendations for developing a total Army as well as those related to the critical issue of Army aviation are worthy of the committee's consideration.

Our total Army needs a major change of direction. This will not be easy, but it's been done before. Army leaders like General Abrams transformed the Army before. They restored the discipline and morale of the force in the aftermath of the Vietnam War. They transitioned the Army to an All-Volunteer Force while revolutionizing training doctrine, and they built an Army that won the Cold War and removed Saddam Hussein from Kuwait. We need this kind of transformation again today, because, as the Commission has made clear, our Army is in trouble. The increasing velocity of instability, combined with continued reductions in defense spending, will inevitably lead to depleted readiness, chronic modernization problems, and deteriorating morale. We can and must do better.

I'm grateful to the Commission for its important contribution to helping us find a better way forward.

Senator Reed.

STATEMENT OF SENATOR JACK REED

Senator REED. Well thank you very much Mr. Chairman. Thank you for holding this hearing. It's—very important, as you pointed out.

After nearly 15 years of continuous operations, it's critical we take a step back and assess the current state of the regular Army, the Army National Guard, and the Army Reserve. As such, our witnesses this morning each bring a unique and valuable perspective on these issues. I look forward to their testimony and exploring in greater detail the recommendations that the National Commission on the Future of the Army has put forth for consideration.

First, let me begin by thanking the commissioners as well as your staff. You've done an extraordinary job. Your hard work, your willingness to take on this challenge is deeply appreciated. The comprehensive study that you have produced is thorough and thoughtful. In particular, I applaud your efforts to reach out to all stakeholders, including senior leadership in the Department of Defense, leadership within the regular Army, the Army National Guard, the Army Reserve, numerous elected officials both in Washington and in the states, and, most importantly, soldiers currently serving in uniform. I think you were guided in those efforts very effectively by the Sergeant Major.

Thank you, Sergeant Major.

Thank you for the process, and thank you for the great effort.

As the final Commission report illustrates, the Army is faced with a number of challenges and tough choices for the foreseeable future. The threats facing our Nation are not diminishing, and it underscores our need for a well-trained and well-resourced, properly equipped military force that can deploy at a moment's notice. The Army has made increasing readiness levels a top priority; how-

ever, in a constrained budget environment, augmenting funding for readiness often comes at the expense of other Army priorities, including investment in modernization and recapitalization. Furthermore, the problem is compounded by the fact the Army has had a poor track record with the modernization efforts, resulting in programs that have been truncated or canceled. I look forward to hearing from our witnesses on their thoughts on how the Army can continue to improve readiness, as well as your views on how the Army can improve its acquisition process.

Another issue the Commission considered was the Aviation Restructure Initiative, or the ARI, and the transfer of all Apache helicopters in the Army National Guard to regular Army. The Commission's recommended allowing the Active component to retain 20 battalions of Apaches, each equipped with 24 aircraft, while providing the Army National Guard with four battalions of Apaches, each equipped with 18 aircraft. In light of the vigorous debate the ARI proposal has generated in Congress and the importance to the Army, I look forward to hearing our witnesses particularly with respect to this issue.

Finally, the Army continues to draw down its end strength, as the Chairman has pointed out. The final goal is 450,000 in the Active Army, 335,000 in the Army National Guard, and 195,000 in the Army Reserve. The Commission noted this level of uniformed military personnel, again, as the Chairman pointed out, provides the Army a minimally sufficient capability and capacity across the range of near-term challenges. In light of the evolving security environment and unanticipated global challenges, I welcome your comments on whether you believe the U.S. Army can continue to meet its commitment with this Army—this size Army.

Again, thank you, Mr. Chairman. Thank you, commissioners.

Chairman MCCAIN. I thank the witnesses. Whatever order you would like to begin, I think would be appropriate.

General Ham, is that——

JOINT STATEMENT OF GENERAL CARTER F. HAM, USA (RET.), CHAIRMAN, NATIONAL COMMISSION ON THE FUTURE OF THE ARMY; HONORABLE THOMAS R. LAMONT, VICE CHAIRMAN, NATIONAL COMMISSION ON THE FUTURE OF THE ARMY; GENERAL JAMES D. THURMAN, USA (RET.), COMMISSIONER, NATIONAL COMMISSION ON THE FUTURE OF THE ARMY; AND SERGEANT MAJOR OF THE ARMY RAYMOND F. CHANDLER III, USA (RET.), COMMISSIONER, NATIONAL COMMISSION ON THE FUTURE OF THE ARMY

General HAM. Thanks, Mr. Chairman. Mr. Chairman and Senator Reed, with your indulgence, I think, with the agreement of my partners here, we'll just have one opening statement, and then go to questions.

Chairman MCCAIN. Thank you.

General HAM. Sir, on behalf of all of the fellow commissioners and the great staff that support us, thank you all for inviting us to testify before the committee on a report on the future of the Army. I'd especially thank you, Mr. Chairman, for having appointed General J.D. Thurman to the Commission, and, Senator Reed, for having appointed Sergeant Major of the Army Ray Chan-

dler. It will be no surprise to those on this committee that both General Thurman and Sergeant Major of the Army Chandler offered characteristically direct and forceful insights to the Commission.

Chairman MCCAIN. Not surprising.

General HAM. No, sir.

The committee and staff have already received the Commission's report, so I won't spend a lot of time addressing specific issues, but I would like to give you a sense of how we approached the task that you gave to us in the Fiscal Year 2015 National Defense Authorization Act. The Commission made every effort to be inclusive, accessible, and transparent. We visited 17 states, interacted with over 320 different Army units of all three components. We interacted with all 54 adjutants general and 33 governors. About 80 Members of Congress engaged with the Commission. We've met with all six geographic combatant commanders, many of their service component commands, and many of our most important allies and foreign partners. That's certainly only a very partial list. We tried to pay strict attention to the law that you passed creating the Commission. Importantly, our recommendations were required to be consistent with acceptable levels of national risk and, importantly, anticipated future resources. In other words, this was not an unbounded effort.

The result is a set of 63 specific recommendations that we believe are well researched based on realistic assumptions and backed by solid data. We found that America's Army is the best in the world, and those who have chosen to serve make it so and deserve our full and continued support and appreciation. Yet, as indicated, our Army faces some significant challenges, many of them budget driven.

From fiscal years 2010 to 2015, for example, overall defense spending declined seven percent, but Army funding declined 14 percent. On the two main issues before the Commission—force size and mix and the Apache transfer—the Commission found the following:

An Army of 980,000 is the minimally sufficient force to meet current and anticipated missions at an acceptable level of national risk. Within that 980,000, as indicated, the Commission finds the regular Army of 450,000, the Army National Guard of 335,000, and the Army Reserve of 195,000 present the right mix of forces; but, again, the absolute minimum levels to meet America's national security objectives. The numbers do not tell the full story. The Army of 980,000 must be resourced so that it is trained, ready, postured, and modernized to meet the Nation's demands.

It's important to remember the mandate that you gave us. You told us to size the force in light of the two previously mentioned considerations: risk and resources. Adjust either, or both, particularly the level of anticipated resourcing, and you would reasonably arrive at very different conclusions. In our assessment, an Army of 980,000 is the absolute minimum—a floor, not a ceiling.

On the Apache question, the Commission recommends the Army maintain 24 fully manned Apache battalions, 20 in the regular Army and four in the Army National Guard. The Commission recommendation has advantages over the Aviation Restructure Initia-

tive in both wartime capacity and surge capacity, and has the added benefit of reducing peacetime deployment stress, and we believe it will better promote integration of the regular Army and the Army National Guard. It comes at added cost. To offset the added costs of having four Apache battalions in the Guard, we make some suggestions with regard to potential cost offsets, including adding only two Black Hawk battalions to the National Guard instead of the four that are currently planned, and suggest considering slowing Black Hawk modernization.

The report also contains several prominent themes based on the Commission's factfinding and analysis. We consider sustaining the All-Volunteer Force, vital to the future of the Nation. A return to a draft or other model of compulsory Military Service will not yield the quality Army the Nation requires. An All-Volunteer Force is expensive to recruit and retain. We believe doing so is the right choice.

The Commission believes it is critically important to develop a true total-force culture. While the regular Army, Army National Guard, and Army Reserve are distinct, essential, and interdependent, they are meant to operate as one force, with their efforts fully integrated. The Commission found gaps in seams in the implementation of the total-force policy, and our report highlights some of those and offers some remedies.

The Commission recommends funding at least at the fiscal year 2016 President's Budget level, which would provide, in our opinion, the Army the minimum resources necessary to meet its requirement at acceptable risk. Given the evolving strategic environment and the potential for growing instability, even this level of funding may prove inadequate in the future.

Additionally, Army funding must be predictable. Successive years of budget uncertainty and continuing resolutions have had significant negative consequences for the Army. In the Commission's view, even with budgets at the President's Budget 2016 level, the Army would still have some significant shortfalls in aviation, short-range air defense, and other capabilities that we address in the report.

Mr. Chairman, Senator Reed, that's a brief rundown of what we found. We recognize that certainly not everyone will agree with our recommendations. Indeed, many have already voiced their disagreement. What I do hope, though—and I think I speak for the Commission—is that our report will contribute to the important debate that the Congress and the administration—I would argue, indeed, the Nation—must have to determine how America's Army should be sized, trained, modernized, and postured.

With that, my fellow commissioners and I are prepared to answer your questions.

[The prepared statement of General Ham follows:]

PREPARED STATEMENT BY GENERAL CARTER HAM

Chairman McCain, Ranking Member Reed; on behalf of all my fellow commissioners thank you for inviting us to testify before the committee on our report on the future of the Army. We appreciate the opportunity discuss our findings and recommendations with the committee.

The Committee and staff have already received the Commission's report, so I won't spend a lot of time addressing specific points. I would like to give you a sense of how comprehensive we were.

The Commission made every effort to be inclusive, accessible, and transparent.

We visited 17 states and interacted with:

- over 320 different Army units;
- all 54 adjutants general and 33 governors
- about 80 Members of Congress; and
- all six geographic combatant commands and many of our most important allies and foreign partners

That is just a very partial list.

I should also point out that we paid strict attention to the law you passed creating the Commission; you'll notice every chapter begins with a direct quote from the law as a way to frame the subsequent material.

The result is a set of 63 specific recommendations that are unbiased, well researched, based on realistic assumptions, and backed by solid data. Importantly, our recommendations had to be consistent with "acceptable levels of national risk" and "anticipated future resources." In other words, we were not unbounded in our work.

What we found is that our Army is the best in the world. Those who wear the uniform deserve our gratitude every day.

The Army faces severe challenges, most of them budget-driven. From fiscal years 2010–2015, overall defense funding declined 7 percent. Army funding declined 14 percent.

On the two main issues before the Commission—force size and mix, and the Apache transfer—the Commission found the following.

An Army of 980,000 is the minimally sufficient force to meet current and anticipated missions at an acceptable level of national risk. Within that 980,000, the Commission finds a Regular Army of 450,000, an Army National Guard of 335,000, and an Army Reserve of 195,000 represent the right mix of forces and, again, the *absolute minimum* levels to meet America's national security objectives.

To fully understand this recommendation it is important to remember the mandate you gave us. We weren't asked to come up with an optimal force size based on the world situation and our best judgment. That would have been nice, but it would not have been realistic.

Instead, we were asked to size the force in light of the two previously mentioned considerations—acceptable risk and anticipated resources. Adjust either or both and you can arrive at very different conclusions, and I'm sure you and the administration will have your own ideas on how to balance those considerations.

However, in our assessment, an Army of 980,000 is the absolute minimum—a floor, not a ceiling.

On the Apache question, the Commission recommends the Army maintain 24 manned Apache battalions—20 in the Regular Army and four in the Army National Guard. The Commission recommendation has advantages over the Aviation Restructure Initiative in both wartime capacity and surge capacity, and will reduce peacetime deployment stress. It will also promote better integration of the Regular Army and National Guard.

To offset the added cost of having four Apache battalions in the Guard, the Commission suggests the Army could add only two Black Hawk battalions to the Guard instead of the four currently planned, and slow Black Hawk modernization.

The report also contains several prominent themes based on the Commission's fact-finding and analysis.

First, the All-Volunteer Force is a national treasure. Since its inception, the quality and professionalism of the force has improved dramatically—but it is expensive. However, the Commission considers sustaining the All-Volunteer Force vital to the future of the nation. All budget and force management decisions must be made with this goal in mind.

Second, the Commission believes it is critically important to develop a true "one Army" Total Force culture. While the Regular Army, Army National Guard, and Army Reserve are distinct, essential, and interdependent, they are meant to operate as one force—with their efforts fully integrated.

The Commission found that gaps and seams exist in the implementation of the Total Force Policy. The report highlights some of those and offers remedies.

For example, we recommend putting all Army marketing under one roof, fielding a consolidated pay and personnel system, and making changes to the existing 12304b authority that will make it easier for the Army to employ the Reserve components.

Third, the Commission recommends funding at the president's fiscal year 2016 level, which would provide the Army with the *minimum* resources necessary

to meet its requirements at acceptable risk. Given the strategic environment and potential for growing instability, even this funding level may prove inadequate.

Furthermore, it should be understood that even with budgets at the PB16 level, the Army would still suffer from significant shortfalls, in aviation and short-range air defense as well as other capabilities we address in the report.

That is a very brief rundown on what we found. Certainly, not everyone will agree with our recommendations. Indeed, many have already voiced their disagreement.

What I do hope, though, is that our report will contribute to the important debate that the Congress and the Administration, indeed the Nation, must have to determine how America's Army should be sized, trained, modernized and postured.

With that, we are prepared to answer your questions.

Chairman MCCAIN. Well, thank you very much. Thank—to the commissioners. We're very appreciative. This comes at a excellent time for us as we begin the markup for the 2017 defense authorization bill.

I guess I would like to start by saying: Obviously, end strength is only part of the answer, but, if you want to improve the missions and capabilities, end strength is a place to begin. Would—I think you would agree. We're now looking at a reduction for 2017 down to 420,000 Active component, as opposed to 450,000. What—I guess my first question is, how serious is that impact?

General HAM. Mr. Chairman, in the Commission's work and in the analysis that we did, some of it in a classified realm—and I would certainly commend the classified annex to the members of the committee and to your staffs—it was our assessment that the regular Army force of 420,000 would be inadequate to meet the Nations' requirements at acceptable levels of risk.

Chairman MCCAIN. You were looking at the 2016 level of funding as a level that you think is barely acceptable, I guess is my interpretation. What if it's $17 billion less?

General HAM. Sir, again, with any—any change to that—and we all—as you know, right now the Army is looking at budgets below the President's Budget for fiscal year 2016. We think that delta in funding just adds to the level of risk, makes it more difficult for the Army to sustain the levels of readiness that are required to meet the Nation's objectives, and further delay any effort to improve modernization.

Chairman MCCAIN. As you pointed out in your opening statement, as we lurch from one year to the next with total unpredictability as to the level of funding, no company or corporation could survive under that kind of uncertainty from—as they lurch from year to year. How harmful is that, not only for planning, but—help me out on morale and retention and readiness, this OCO idea, which none of us like, but seems to be the only way that we're able to fund—but the impact of the year-to-year uncertainty of the ability they're going to be able to carry out their missions.

General HAM. Mr. Chairman, let me start, and, if you'll allow me, maybe turn to Sergeant Major of the Army Chandler.

I think, in my view, the biggest impact of the budget uncertainty manifests itself particularly in the area of modernization, but we also—in our site visits around the Army, also heard numerous reports from soldiers, noncommissioned officers, and officers of their training and leader development plans that were disrupted because of the uncertainty in the budget. For example, some leader development courses that were canceled or postponed early in the fiscal year because of funding challenges. Particularly in the Reserve

components, if a young noncommissioned officer who is either employed or perhaps a college student had made plans to attend a leader development course, and then that was suddenly canceled because of budget challenges, it may be a couple of years before that Reserve-component noncommissioned officer may find another opportunity to attend important leader development.

Sergeant Major?

Mr. CHANDLER. Thanks, sir.

Mr. Chairman, you know, one of my great privileges is to be able to talk with soldiers. It's what I did as the Sergeant Major of the Army, it's what I was able to do in great part as part—a member of the Commission. I will tell you, I think that the risk to soldiers in the long-term impact on areas like leader development and retention are huge if we're not able to sustain a budget over a period of time. I'll give you a quick example.

We had the opportunity to go to the National Training Center and speak with the 116th Brigade from a number of states, primarily Idaho. One of the commanders that we had an opportunity to speak with, he was very concerned about being able to retain his mid-grade noncommissioned officers and officers. The challenge was, if I'm—got to make a choice between going on an annual training event or, as they did, 60 or 70 days of annual training in order to prepare for a NTC [National Training Center] rotation, if they weren't going to be utilized after that and deployed someplace, then the issue became, "Why am I doing this? I've deployed several times over the past 14 or 15 years, and now being in a place where I'm spending 2 or 3 years ramping up for a keystone event, go to the National Training Center, and then not be deployed to go do something. Why do I need to continue to do this?"

I think you'll see that, if we're not able to sustain adequate funding, leader development programs, and the opportunity to go and train and deploy, this will have a huge impact on the Army's ability to generate readiness and fight and defend our Nation's wars.

Chairman MCCAIN. General Thurman.

General THURMAN. Mr. Chairman, one of the things that I've observed with the lack of predictable funding has been not being able to sustain Combat Training Center rotations. The crown jewel of the Army to be able to conduct decisive land combat is at our training centers. There were cases over the past few years where rotations were canceled. That is not a good ideal, particularly when we've got formations that have to be trained for land combat. I just used my past experience in Korea. That situation is very volatile over there, and it requires ground forces that are properly trained for decisive land combat. This has got to be sustained.

That was one of the things that I saw a I looked in—over the course of funding is—if we don't have predictable funding and cannot sustain readiness, particularly on the high end, then we've got an Army that's not properly trained.

What I've learned over my experience, a soldier must have confidence in themselves, they must have confidence in their leadership, and they must have confidence in their equipment. That—and if they don't have that, and have the opportunity to train on that, then we're headed for something that is not good for the country.

Thank you.

Chairman MCCAIN. Sir, did you want to answer?

Mr. LAMONT. Just very quickly. I want to point out, when we made reference to and benchmarked FYPB16 [Fiscal Year Presidential Budget], that was really informed by the QDR [Quarterly Defense Review] of 2014. The strategic environment, as we all know, has changed fairly dramatically since then. We're quite concerned with those levels, particularly as we go into 2017.

Chairman MCCAIN. Senator Reed.

Senator REED. Well, thank you very much, Mr. Chairman.

Once again, gentlemen, thank you and your colleagues for your extraordinary service.

Let me go back to the issue of the Army Restructuring Initiative, the helicopters. I think, General Ham, your comments and also the report suggested that one of the reasons that you think it—there should be Apaches in the National Guard is to help integrate Army aviation across the whole spectrum—Active forces, National Guard forces, Reserve forces. I—you might comment on that. Also, in terms of the location of these residual National Guard units, was there any consideration to ensuring they are closely colocated with Active forces so they have access to training ranges, to—you know, to the things you need to do to stay proficient and current? Would that be part of your recommendations, or would you consider making further recommendations?

General Ham and——

General HAM. Yeah, Senator Reed, thanks. If you'll allow me to begin, then I'll turn to General Thurman——

Senator REED. Yes, sir.

General HAM.—who served on the Aviation Subcommittee.

We looked at four criteria in evaluating a number of alternatives for—with regard to the Apache issue. We looked, first and foremost, at wartime sufficiency. What was the proper structure to meet the stated wartime demands? That's articulated in the classified annex. We also looked for what alternative offered the best surge capability for unforeseen circumstances. Thirdly, we did look at, How do we best support the total force policy or the integration of the components? Lastly, importantly, looked at cost. In all of those, we came to the conclusion that we have stated. Cost, by the way, is one—is the reason why we recommend—while the battalions in the National Guard——

Senator REED. Right.

General HAM.—be fully manned, they be equipped with only 18, vice 24, aircraft, purely as a matter of cost. The National Guard Bureau and the Director of the Army National Guard told us that they are quite familiar and comfortable with cross-leveling units when there is a need for operational employment.

Before I turn to General Thurman, Senator Reed, just—we did not look specifically at where those battalions might be located. Certainly in the recommendation that addresses multi-component units, which we think is important, it does work best, in our opinion, when those units are colocated—regular Army, Army National Guard, and Army Reserve.

General Thurman?

Senator REED. General Thurman?

General THURMAN. Sir, Senator Reed, just to add to that. One of the things that I just would recommend is, we went into extensive analysis on wartime capacity that's in that classified annex that General Ham referred to. Bottom line, there's—if you put all of the AH–64 aircraft in the regular Army, you have no strategic depth to reach back to. That was a big driver.

Here's the other fact, is—our aviation units today—Combat Aviation Brigades, Apache units—are inside the 1:2—1 year deployed to two years back home, the BOG Dwell that's referred to. That really drove us to come up with a alternative to the Aviation Restructure Initiative. Frankly, that initiative was budget-driven, when you really get inside that and look at it.

The National Guard option, we looked at that, although a little more expensive. We used several of the analysis agencies to help us with this, with—inside of the Training and Doctrine Command. We settled that we—as a minimum, you need 20 battalions in the regular Army so you can get them out the door. We learned a lot of lessons at the start of this war, with aircraft and aviation. Twenty-four is the right number in a Apache battalion to maintain the amount of combat power that you must have when these formations are deployed.

For the Army National Guard, we see some opportunities also for them to work with combined-arms maneuver, particularly with the units that are closely located, whether it be Fort Bragg, Fort Hood, you name it. That's very important, because an aircraft not working with maneuver formations, sir, you know that's not very effective.

In terms of cost, what we didn't want to do as a Commission is bring forth an option and not look in detail at this cost, and look at how we would offset those costs. Therefore, we looked, as an option, at the Black Hawk fleet. Not to say the Black Hawk fleet is not an important capability, because it is one of the capabilities that's requested all the time, whether it be inside the regular Army or for states and governors for what they do in the Homeland. The National Guard option said they could get by with only two battalions of Black Hawks, so we looked at a 3 percent reduction—modest reduction inside the Black Hawk multiyear to be able to offset that. The onetime cost to go from the AH–64 Delta aircraft to the Echo model, which we would recommend, is about $420 million. We thought we could offset that inside the aviation portfolio. The annual operating costs are about 165 million. Therefore, we brought forth a option that is really paid for out of that aviation portfolio, and that's what we tried to do.

The other thing I think that's important inside of Army aviation and what the current environment shows is, we are rotating—or are going to begin to rotate the Combat Aviation Brigade out of Korea. Our professional judgment was to leave that permanently stationed in Korea. One, they've got to be ready to fight tonight. There's environment issues over there. You're in a combined environment over—with the Republic of Korea. That is very important, I think.

The last point I would bring up—or two points—is, we also recommended retaining an 11th Combat Aviation Brigade. Now, we don't have—we would have to come, obviously, to the Congress to

get additional funding for that. That's about $1.9 billion, because you'd have to buy additional aircraft to maintain 11 Combat Aviation Brigades. The current environment says we need 11 Combat Aviation Brigades in the regular Army.

Then the other thing that I could talk about would be the increase in flying hours funding.

Senator REED. Thank you.

Thank you very much, Mr. Chairman.

Gentlemen, thank you for your service.

Chairman MCCAIN. Senator Sessions.

Senator SESSIONS. Thank you, Mr. Chairman.

General Thurman, on the aviation question, it seems to me—and you're recommending a stronger commitment to that, it seems like to me—what we learned in Iraq and Afghanistan was just how critical that aviation component is. Would you share your thoughts about the lessons learned and the shortages we found when we were trying to maintain operations in Afghanistan and Iraq?

General THURMAN. Yes, sir, Senator.

As a division commander in Baghdad in 2006, the first call I always heard was, "Troops in contact, requesting attack helicopters." The reason I bring that up, because this entity is one of the capabilities that changes dynamics on the battlefield. I would say aviation is going to continue to be a high-demand item in Afghanistan and also what—in Iraq or any other theater that we are going to get involved in. You see it when you review the war plans, and you see it when you review the requirements that are coming into the Joint Staff for Army aviation.

Senator SESSIONS. Well, I think that's true. I was talking to a young former helicopter pilot, and flew over a group of Sunnis that we were supporting. They were all standing up and cheering. They were facing combat, and they'd call for air—aviation support, and, when it came, he could see them cheer when they flew into the battle. I think it's a big deal.

With regard—I understand that the President's Budget zeros out the Lakota aircraft that's going to be used to replace the old TH–67 trainers. Any of you aware of that and have any comment on it? Do we—we're well in the process of replacing those. I think you—it's odd and concerning to me that it would just be stopped.

General THURMAN. Senator, first thing in regard to the Aviation Restructure Initiative, we did not look in detail at the entire ARI proposal. We looked at—the question the law directed us to look at was primarily on AH–64s. I have heard that the—there has been an adjustment of funding levels inside of Lakota aircraft. I can confirm what you've just said.

Senator SESSIONS. Well, we'll need to examine that, I think, and make sure.

With regard to the Aviation Restructure Initiative, it's—there was a claim of 12 billion in savings. You believe your plan—that sort of strikes a compromise—maybe General Ham—I—whoever would like to answer this—your plan tries to offset any cost of this area. You think that you've minimized the cost by leaving, what, four in the Guard?

General HAM. Yes, Senator. Certainly the recommendation that the Commission made is more costly than the Aviation Restructure

Initiative. Again, as General Thurman mentioned, Senator, we didn't look at the entirety of ARI, we looked specifically at Apache. We felt it was important for us, if we were going to recommend to you something different than the Aviation Restructure Initiative, that we at least offer some off—some alternative sources of funding offsets for you and for the Army to consider.

Senator SESSIONS. Thank you.

One of the things that's concerning me about this is that, as a—in reality, General Ham, maybe Sergeant Major Chandler, it's easier to fire, eliminate a Active Duty military uniformed soldier than a civilian. As a result, it seems to me we've drawn down dramatically our uniformed personnel since the peak of the war. A lot of that was natural. I mean, we expected some of that to happen. Have we done enough to focus on reduction of civilian personnel? It seems to me it would take fewer civilians to support 450,000 Active Duty than it does to support 570,000 Active Duty. Have you given any thought to that?

General HAM. Senator, we didn't delve into that issue particularly, but I would say—and this is, in hindsight, probably an area that perhaps we could have dealt with more fully—Army civilians are also part of the total force. It's regular Army, Army National Guard, Army Reserve, and the Army civilians that are so essential to sustaining soldiers in all the components. Having said that, I think certainly a comprehensive review is warranted. I would say the other component of that is certainly the contract force that provides many services to the Army, as well. We simply, because of time and scope, did not spend a lot of effort in that area.

Mr. LAMONT. I might add something to that, having been the former Assistant Secretary of the Army for Manpower, which had the civilian component within that organization. We reached a peak also in civilians about the same time as we reached in the uniformed side, with roughly 570-, the number being anywhere from 275,000 civilian upwards almost to 300,000. I'm advised—and I can't say this as being totally informed, but I'm advised we're roughly at 235,000 Army civilians now, or at least headed in that direction. Perhaps some of the staff can confirm that.

We have to be a little bit careful as we refer to the generating force. There's the operational force and the generating force within the Army, and the generating force takes up roughly one-third. Within that generating force is over 60 percent civilian. We have to be a little bit careful. It's not always proportional when we cut those down. You—I think your point, though, was well taken, that there may be some need to see some reductions.

Senator SESSIONS. Thank you.

Chairman MCCAIN. Senator McCaskill.

Senator MCCASKILL. Thank you, Mr. Chairman.

I particularly noticed in the report those areas that were cited as an unacceptable risk, because it seems to me that we need to really pay attention to where you have determined we have an unacceptable risk. Contained in those things were—that you characterized as an unacceptable risk was chemical, biological, radiological, and nuclear response, and also military police. Now, I obviously am aware that Fort Leonard Wood is incredibly important to all of the above, so I would like—General Ham, if you could, briefly

talk about what are the potential consequences to our strength and our capabilities if we are not really drilling down on this unacceptable risk that you all reported on.

General HAM. Thanks, Senator. I would, first, recommend the classified annex, which gets into some of the particulars, particularly with regard to the chemical, biological, radiological, and nuclear units of the Army. In general, I would say that both of those capabilities that the Army possesses in its various components reflect a structure that was based on a different operating environment than exists today, with the necessity that the Army and the likelihood that the Army will operate in a chemical, biological, radiological, or nuclear environment at home or overseas, I think, drives some added emphasis in that area. There is—I would note, we believe that there is a particular role for the Army National Guard for domestic response in that area.

With regard to military police, as many parts of the world are increasingly urbanized and soldiers will be operating in and amongst populations, the military police provide a very special capability that facilitates the ability of other Army units to operate in that environment. Again, it was our general assessment, in both of those capabilities—CBRN [Chemical Biological Radiological Nuclear] and military police—that the capacity within the Army across the three components has not kept pace with the demand.

Senator MCCASKILL. I assume, since engineers were not cited, that you all are comfortable with our capabilities in the—with the Army Corps and the engineering force?

General HAM. Yeah, Senator. Two different things. We didn't spend a lot of time with the Army Corps of Engineers. An absolutely vital part of the Army and its contributions to many facets of American life and foundational for the economy are well known to you and the members of this committee.

With regard to the operating force of the engineer corps, we didn't find significant shortfalls in engineers, themselves. We found significant shortfalls in tactical mobility, meaning that engineer units across the Army, all components, many of them have much of the equipment that they require, but they can't move it. In simple terms, I may have my bulldozer, but——

Senator MCCASKILL. Don't know how to get it there.

General HAM.—I have no way to move my bulldozer from where it gets off at a port to where it's needed to be. That's a needed area to be addressed.

Senator MCCASKILL. I also looked at the report as it relates for the generating force. I know, Mr. Lamont, you just referenced the generating force. Does the Commission believe the Army has cut too much from the generating force? How much risk has been taken in the Army's ability to expand the generating force, if necessary? I mean, obviously, you know, if we don't have the folks in place to train up what we need, then we are really in trouble. If one of you would address the issues around the—what is the appropriate size of the generating force? Do we really even know?

Mr. LAMONT. Well, let me take a stab at that.

One, we are quite concerned with the generating force, as I just mentioned, and the—although the Commission did not delve deeply into that, I think you hit a key point when you said, "What's our

ability if we have to expand?" Those—the generating force are our trainers, our schoolhouses, our medical, and things of that nature. As the war progressed in, I want to say, 2008, 2009, 2010, the demand for troops grew, and we moved any number of troops out of the generating force and sent them off to war. They were replaced, often, by civilians. I think that that ratio remains much the same.

We are quite concerned with the size of the generating force. I don't know that there is an ideal number, an optimal number. We'd better have them when we need them.

Senator MCCASKILL. Do you think the ratio of 60 civilian, 40 military is appropriate for the generating force? That seems awfully high civilian, which I understand how it happened and why it happened, but shouldn't we try to reverse that?

Mr. LAMONT. Well, speaking as—personally and not as a member of the Commission, I agree that that's quite bad. In fact, when I left, it was over 62 percent were civilian. That seems dramatically small—or large.

General HAM. Senator, would it be okay if Sergeant Major——

Mr. CHANDLER. Senator, just—another item of information. The Army uses modeling to develop force structure——

Senator MCCASKILL. Right.

Mr. CHANDLER.—for operational forces, but we don't currently have a model for the generating force.

Senator MCCASKILL. For generating?

Mr. CHANDLER. There is a great deal of work that's going into developing a generating force model. When the Army achieves that, I think you'll be able to have better granularity on the questions that you're asking.

One thing I would tell you, is that there is no proportional ratio, from my perspective, having been in the training and doctrine business for quite a bit of time, that says, "Okay, if you cut this from the operational force, then you can see a reduction in—a similar reduction in the generating force." If you've got to train soldiers at basic combat training, it takes a certain amount of people. That ratio never changes.

I applaud the Army's effort for the generating force model. I'd ask them to move on that as quickly as possible. Then I think you can get to the real—instead of throwing darts at a dartboard—to a real level of granularity on where the generating force should be. I think most of us are uneasy about the fact that we've cut it to—maybe into the bone.

Senator MCCASKILL. Thank you, Sergeant Major.

Thank all of you for your work on this.

Thank you.

Chairman MCCAIN. Senator Ayotte.

Senator AYOTTE. I want to thank all of you for your distinguished service and work on this Commission.

I know that the Chairman had asked you about the total force size and thinking about, What's the optimal size of the Army? That's what I would like to hear from you. Let's—given the threats we're facing around the world, given the challenges that we face—as I understand, General Ham, you also noted that the President's fiscal year 2016 plan does not take into account recent changes in strategic environment. Can you tell us what is the optimal size for

our Army? Because I think it's important for us to understand what the optimal size is if we really want to protect the American people and not in a budget-constrained environment. I understand we're in that, but we should understand—With the threats we're facing, what is the number, if you could decide that number today?

General HAM. Yeah, Senator, it is—it's a great question, and a tough question—it is important to note that, of course, that was not the task that we had in the law. The task that we had in the law was constrained by resourcing. That's how we approached our work.

I think I'm on a firm ground that I would speak for the Commission that said if you—if the law had not contained that constraint, if it didn't say you have to provide recommendations——

Senator AYOTTE. See, this is the great thing about hearings. We can sort of ask anything, even if we——

General HAM. Right.

Senator AYOTTE.—said "in the law."

General HAM. Right.

Senator AYOTTE.—I'm asking for your opinions today.

General HAM. Yeah. The Commission—I think the Commission did not address that. I would offer you my personal opinion that would say—again, let me backtrack and speak one moment for the Commission.

We were careful in the words that we chose. We chose "minimally sufficient" at—of an Army of 980,000. Minimally sufficient. I think it's a real question to say, Is that the Army the Nation wants? Do—does America want a minimally sufficient Army? I think that's a discussion for many to have.

I think if the—if additional funding were available, then certainly a larger force—again, let me speak personally—I would say, halt any further drawdown now, and make a more—much more comprehensive assessment of the operating environment, and then see what that cost may be, and then come back to this committee and others to say, "Here's what we think the bill is."

Senator AYOTTE. "Minimally sufficient," to me, doesn't sound like protecting our national security interests. That's really—I'm not going to ask you to give me an opinion as a Commission, but you, given the breadth of experience on this panel, based on your experience, General Thurman, where do you think we need to be, versus putting aside the budget issue for a moment? Because this is an important, I think, understanding that we have to have of where we are versus where we should be.

General THURMAN. Yes, ma'am.

Senator, I will tell you, I'm very concerned, because I think we've got major warning signs in front of us right now. Not speaking as a commissioner; I'm telling you what I see as I watch the resurgence of Russia—they're basically in Syria, they're conducting their own NTC rotation. They have gone to school on us, and, as I watch that unfold; and then I turn to Korea and I watch what's occurring over there in Korea today, it's probably more dangerous today than it's been in a long time, given we're dealing with a maniac over there, frankly. Those forces over there have got to be trained, ready to fight tonight, because it's a miscalculation on either side that could get us in a war.

I think, if you look back what happened over the course of the last few years when we had the Budget Control Act go into effect, the assumptions have changed. One, we're not out of Afghanistan, probably putting more back in. We've got ISIS [Islamic State of Syria], ISIL [Islamic State of Iraq and the Levant], Iraq, Syria. We've got Africa, the—North Africa, that whole issue that's going on in there. One of the recommendations that we got in the report is to go back and review the national security strategy that we currently have in the budget, because I believe it's seriously out of balance and—as I look at this.

The number—there needs to be another analysis, in my opinion, to go back and look at, What is the right size Army that this Nation needs? Frankly, it's going to be expensive, and we've got to, I believe, come to grips with that. The—frankly, the assumptions that—when we reduce the force, they're not true anymore. We have a set of failed assumptions. That's my opinion.

Mr. CHANDLER. Senator, if you don't mind, I'll add my two cents. I think I can be blunt. I don't think it's wise for us to consider growing the Army until we totally use the entire force and then determine from there what additional capabilities we may need. We've used the Active component, the regular Army, significantly, and the Guard and Reserve less. We need to use and execute the total-force policy to get the Guard and Reserve engaged on a predictable rotational basis——

Senator AYOTTE. Well——

Mr. CHANDLER.—which will allow us——

Senator AYOTTE. I don't want to interrupt, here, because I know we have a vote, but I'm not sure, if I asked my Guard and Reserve members if they've been used less, given the nature of many of them holding down civilian jobs at the same time, they would necessarily agree with that calculation, especially with what we've had to do in Iraq and Afghanistan. We couldn't have done it without them.

Mr. CHANDLER. I would tell you that the vast majority of guardsmen and reservists that we talked to want to be utilized more frequently, in a predictable manner.

Mr. LAMONT. I would concur with that, by the way, as a traditional guardsman for 26 years. We found this every visit we went, "If you're going to train us up and then not use us, why are we here?" It's much different than my years, back in the '80s and early 1990s.

Senator AYOTTE. Well, I have great confidence in our Guard and Reserve, but I don't think that gets to the fundamental question. Because they're asking—we're asking to downsize them, too, in terms—I mean, the decisions you're making at today are how much training, how much aviation assets they're going to get, what are they going to get for their readiness? To me, I think it's a total-force question for the Army, and it's one that we need to face, of: Where are we, versus the threats that we're facing? It seems to me that—as I hear some of these threats, that it's time for us to really think about not drawing down, but looking at, How do we make sure we can protect this Nation? Also that we don't drain our people. You know, the dwell-to-deploy ratio and really making sure our

most precious resource, that they have what they need, and the support that they need.

Senator REED [presiding]. Well, thank you very much, Senator.

I—the Chairman is voting. Most of my colleagues are voting. They shall return. I think someone famous once said something like that. I'm going to take the opportunity, and, as soon as one of my colleagues arrives, I'll recognize the person.

Sergeant Major, what's the most interesting, insightful thing that some of the soldiers told you when you were out with your colleagues in the field that we should know?

Mr. CHANDLER. Well, I think the one thing that I would ask the committee to take away is, the soldiers are extremely proud of what they do, regardless of what component they're in, and that they want to serve, they're proud to serve, their families are proud of what they do. They want to be ready to do what it is that the Nation asks us to do, asks them to do. You know, whether you're—you're dusty and sweaty and haven't taken a shower in 3 days at the National Training Center, you know, these kids were motivated. They were going to finish their final live-fire objective. They were excited about what they were doing. If you went to a drill and saw what some of these kids are doing, yeah, they don't want to do a lot of mandatory training, they don't want to look at PowerPoint slides, they want to get after it, they want to be what they came in the Army to be, which is a United States Army soldier of the proud tradition that wants to do the Nation's bidding.

You can't—having been away from the Army for a year and coming back and trying to be objective, you can't but be filled with pride in the service that these kids—we—I spoke to a specialist in—at—and actually came to a hearing in Washington. This kid had tried to do many things before he entered the Army, but the Army gave him a sense of purpose and a desire to do and be a part of something bigger than himself. He was almost in tears, moved me to tears, about his sense of who he was and what he was about. That's the thing I'd ask you to take away. These kids are proud of what they do. They need the Nation's support.

Senator REED. Thank you very much, Sergeant Major.

Again, thank you, gentlemen.

On behalf of the Chairman, I would like to recognize Senator Ernst.

Senator ERNST. Thank you.

Thank you, gentlemen, so much for being here today and for your testimony. I certainly appreciate all the years of service that all of you have given.

I'd like to start with some discussion about the State Partnership Program, which has been really important to Iowa and many of our other states. Throughout your report, you stress the need for the Army to enhance its total-force approach to ensure the Army can meet its mission requirements, and the importance of the National Guard in achieving that goal. I do appreciate the thoughtful analysis of the importance of the Guard, especially, since 9/11. In particular, I would like to talk about the State Partnership Program. I do think that this program is key in allowing our Army and our country to better partner with foreign countries and develop these

nations and enhance our security and the security of our allies, and doing so at a low cost to American taxpayers.

Last week, this committee had a hearing on the Asia Pacific, and the witnesses stressed the importance of SPP [State Partnership Program] and their belief that it should be expanded more into the Asia Pacific, in particular. Is this a program that was looked at during this study? If any of you could address that, or, General Ham, if you would like to take that. National—the impact to our Army with use of the Guard as well the State Partnership Program, was that looked at, at all?

General HAM. Thanks, Senator. We heard, loud and clear, from all six geographic combatant commanders, their praise and reliance upon the State Partnership Program, and every one of them wants that program, not only to be sustained, but to be increased. They're looking for more and more opportunities to expand State Partnership into other nations, particularly new and nontraditional partners in some parts of the world. I would agree with you, and it's certainly what we found in our work, was the State Partnership is a very low-cost, high-payoff program for the Army and for the Nation.

Senator ERNST. Thank you.

Any other thoughts, gentlemen, on that? Yes, sir.

Mr. LAMONT. Yes, ma'am. Being from your neighboring State of Illinois and a guardsman, and our partner was Poland. In my previous life, as the Assistant Secretary of the Army, I happened be in Poland at the same time as the Illinois Adjutant General. I was absolutely irrelevant to the Polish army, because their connection was with the Illinois Guard. That partnership is so vital to our country partnerships; it is extremely important. They didn't care about me or anybody else, but they cared about the people they worked and served with, visited with, went to war with. Poland, as you probably know, have provided us, and maybe still provide us, with a brigade at least once a year when we were in Afghanistan and Iraq. What that saved United States taxpayers, for instance, and our soldiers, was enormous. It is vitally important, as you know.

Senator ERNST. Very good. Well, I appreciate that. Iowa has a very strong partnership with Kosovo, and, through that, we've developed—even outside of our State Partnership Program, between our soldiers and Kosovo Security Forces, have developed now an economic relationship through our State with the nation of Kosovo. Just the last couple of weeks, we opened a brand new consulate in Des Moines. That's our State's first consulate. We were really excited about that. That started and grew out of the State Partnership Program. I appreciate your thoughts on that.

I'd like to turn to a different topic just very briefly. One of the recommendations is to reduce mandatory training, as prescribed by the Army Training and Leader Development Regulation. While I agree with this recommendation, I can't tell you how many times I have spoken to Active-component commanders as well as Reserve-component commanders, and they have said that they are assuming risk rather than mitigating the risk due to the mandatory training requirements. The over-burdensome requirements mean that commanders aren't able to use that time to train on their

unit's mettle or their mission-essential task list, which ultimately harms the readiness of their units and the Army as a whole. You know, we're in a politically correct environment. We seem to be very risk-averse. Can you talk to that, maybe, a little bit more about—and maybe, Sergeant Major, if you would address this—on how we get back to being soldiers, but also giving back some of that risk?

Mr. CHANDLER. Well, thanks for the question, Senator.

The—I would start off by saying that the Army is making inroads to reduce mandatory training, in line with the doctrine of mission command. The mitigation of risk is by the higher commander. It's—if I was in command of a unit, it would be my responsibility to tell my higher commander, "These are the areas of risk that I am assuming, based off of what you told me to do." The challenge really is even exacerbated for Army National Guard and Army Reserve units because of the limited amount of time, as you well know, for IDT [Inactive Duty Training] weekends or battle assembly weekends. Where do you find that balance? I applaud the Army's effort. The Commission does, highly recommends that the Army move out a little bit quicker on reducing the overhead burden, so to speak, of the mandatory training requirements. Look, we ask these commanders to make life-and-death decisions on the battlefield. We should entrust and empower them to make those same decisions at some home station or IDT battle assembly weekend event. Same with Active component. We're not going to get to the level of readiness that we need to if we continue to add necessary, but mandated, requirements with a certain frequency. The commander knows the unit. They should be able to make the decisions on when and where they need to make the mandatory training occur and still maintain an acceptable level of readiness.

Senator ERNST. Very good. I also agree with that, Sergeant Major. Our company commanders and first sergeants, our battalion commanders and sergeant majors know their soldiers best, and they know what they need to work on. I'm glad to see that we have a recommendation that moves us in that direction.

Thank you much, Senator Reed.

Senator REED. On behalf of the Chairman, Senator Donnelly, please.

Senator DONNELLY. Thank you, Mr. Chairman. I will pass to Mr. King.

Senator KING. Thank you, Mr. Chairman.

First, an observation. The budget control caps were set in 2011. I was just making some notes. That's pre-ISIL, pre-Syria, pre-Ukraine, pre-South China Sea, pre-North Korea launch. Here we are, trying to fit the defense posture of this country, subsequent to all those events, within caps that were established five years ago. Now, they were adjusted somewhat last year, but not all that much. It just—it—I mean, I'm all for planning and thinking ahead and having constraints, but when the constraints keep you from responding to the threats that the country is facing, it's just not a rational or prudent policy, it seems to me.

I wanted to start with a question. General Ham, when you made your recommendations, were you consciously or unconsciously operating under those caps? In other words, are your recommendations

based upon those budget realities or were they based upon what your best judgment of what the Army needs to look like in order to meet the threats that this country faces?

General HAM. Senator, a little bit of both. Certainly, the judgment of the eight commissioners—lots of experience in a lot of different fields represented there. Again, we were instructed in the law that we had to conduct our assessments and make our recommendations consistent with an anticipated level of future resource. It wasn't further defined. You could kind of pick and choose, What do you think the anticipated level of future resourcing would be? It was our general assessment that it's unlikely, at the time that we were doing our work, that there would be a significant increase in funding. We—that's why we—we've centered on this notion of the level of funding in the President's Budget for fiscal year 2016 in the—and was kind of the—again, the floor of ceiling. Of course, as you know, Senator, we're not at that level yet. I think that's at least a start point. It was—I guess to summarize, it was a—looking at the anticipated security environment, but certainly informed by the level of funding we thought might be attained.

Senator KING. You understand the thrust of my concern.

General HAM. I do, sir. One of our most important recommendations, already been referred to, is that, because the global security environment has changed so significantly from those days of budget and strategic plans, it is time for, we believe, new strategic guidance.

Senator KING. I certainly agree with that wholeheartedly. To put a point on this, you recommend going down to 30 Active BCTs [Brigade Combat Teams], which is actually less than we had before September 11th, and then perhaps a reduction to 28. Here's my question. How long does it take to recruit, train, and equip a BCT if we wanted to increase that number, from a standing start?

General HAM. Senator, let me take a stab at it and maybe ask the Sergeant Major of the Army to comment.

I actually had to do this when I was a division commander. A brand new infantry Brigade Combat Team was formed, stood up, equipped and deployed. With all of the very, very high priority—this was in the mid-2000s—it took about 18 months to be able to do that. I would say in a—on a more normal basis, it would probably take—and again, that was in a period of almost unconstrained resources—typically, I would say two to three years would be a more likely timeframe to start from scratch and build a Brigade Combat Team.

Senator KING. That reminds me of the old thing I learned in Driver's Ed, that your headlights only illuminate a certain distance down the road, and, if there's a wall 1 foot beyond that distance, you can't stop. We're not going to have the ability to respond to a threat if we're talking a minimum of 18 months to two and a half to three years. I mean, that's the risk that we're undertaking as we make—as we're making these decisions.

I—General, your reaction to that kind of——

Mr. CHANDLER. Senator, I would say—and I agree with what General Ham said—the greatest challenge is the leader development in order to fill that brigade.

Senator KING. That's not something you can just turn off and on.

Mr. CHANDLER. No, those—you know, it takes 20 years to make a battalion commander or a brigade commander. I mean, it takes 20 years to grow a sergeant major, 15 years to grow a first sergeant. Expansion will get the people into the Army, will get the equipment to where it needs to be, but to find the leadership in order to fill out that organization and make it effective takes time. There's just not a lot of them to spare.

Senator KING. Okay. I have the same concern about the end-strength numbers, that those were numbers derived from a different strategic world, and that we really do need, as you say, a strategic reset to take account of the current challenges.

Yes, sir.

General THURMAN. Senator, I was a G3 of the Army for three years, and I was there for the grow-the-Army piece, where we grew Brigade Combat Teams up to 43 Brigade Combat Teams. I was there for Iraq surge, Afghan surge, and watched what goes on inside the Army. The biggest issue is manpower because of what it takes to get the right people in these jobs. It varied on the length of time. Also, as division commander, my experience, just—much like General Ham, we deployed a brigade for a specific set of missions, and we were able to man, train, and equip that in 18 months. That's a stretch. That's a big stretch. Again, that's having all the resourcing you need, with the right levels of modernization.

Senator KING. Two——

Mr. CHANDLER. That's something that's a concern. Yes, sir.

Senator KING. Two days ago in this committee—and I'll end my comments; I know I'm over time—two days ago, we had General Clapper here, who said that, in his 50 years of service to this country, he has never seen a more diverse or serious set of threats. At the same we're getting that testimony, we're talking about reducing end strength and developing a situation where it's going to be very difficult to respond to a crisis.

Thank you, Mr. Chairman.

Thank you, Senator Donnelly.

Mr. LAMONT. Senator, I just want to point out one thing. In that recommendation for perhaps removing two ICBTs—IBCTs, that was conditional. If there were no other alternatives inside the Army, the resourcing, or anyplace else, that's what we might have to look for. That was a big "if."

Senator REED. On behalf of the Chairman, Senator Tillis, please.

Senator TILLIS. Thank you, Senator Reed.

Thank you all for being here, and thank you for your service.

I have a question. How do—what are your opinions about the current balance between the number of general officers in the Army and the current force structure, overall end strength?

General HAM. Senator, we did not assess that. I would offer a personal opinion, and—just from my own personal experience. That is a thing that's continually looked at to see if it's quite right, not only in terms of number, but in terms of grade structure—one, two, three, or four stars. The Army has made some adjustments over the past couple of years. It is a constant evaluative process.

Senator TILLIS. Any other comments?

[No response.]

Senator TILLIS. Talk a little bit about acquisition and reform. To what extent have you all looked into some of the reforms that are detailed in the fiscal year 2016 NDA. Do you agree with them? Do you think that they make sense? Are there any concerns with them?

General HAM. Senator, again, it got outside the mandate given to the Commission, so we didn't spend a lot of time on acquisition reform or, for that matter, for modernization. Clearly that's a—an issue—in order for the Army to keep apace with the technological advances, for our soldiers to be equipped so that they can go into battle, as we say, never into a fair fight, I think modernization and the acquisition reform that will lead to cost-effective modernization are clearly critical items for the Army and for the Nation to address.

Senator TILLIS. Yeah, it seems to me that we really need to have that considered in any kind of overall assessments of the Army or any branch, because we're—the money and the inefficiency that we have there is at the direct expense of other things that we need to spend our money. This is one area I would like for you all to touch on. In my time—I'm from North Carolina, and spend a lot of time down at Camp LeJeune and Fort Bragg. One consistent theme that I'm hearing down there is a concern that our readiness levels are at a very low point. If you take a look at Fort Bragg and you're talking about the number of jumps that they want to do now, at—we've had this discussion about Pope Air Field and little bit of a disagreement with the Air Force on what we should do with those assets down there. That stimulated a discussion about just how many jumps we should have. It's substantially higher than what they've been doing over the past 10, 15 years. My concern is, that points to, I think, a readiness deficiency. To what extent do you all agree with that?

Sergeant Major, I see your shaking your head. We'll start with you.

Mr. CHANDLER. Well, Senator, I think, you know, the Army developed a capability called a Rapid Equipping Force, which was able to generate and fill requirements much more quickly than I think the normal acquisition process takes. My only recommendation was, maybe there should be some look at how that process worked, and does it apply to the overall acquisition program. You know, I think there were some decisions made about how many jumps folks would make in airborne units, because of the necessity to get them prepared to do the directed mission they had in Iraq or Afghanistan. Getting those guys back, jumping of planes—guys and gals jumping out of planes is a great thing. Personally, I'm all for it. How that fits into the overall picture, I'm not aware of right now.

General THURMAN. I would add two points to your question. That has to do with acquisition. I think it is right to do acquisition reform. It takes too long to field equipment. Why does that happen? It happens because we never seem to get the requirements right. You have to lock down the requirements in a more timely manner. I mean, if you look at the Army, the Army's track record is not good. Ground combat vehicle, armed aerial Scout, all those were killed because, over time, it takes too long to field that equipment.

Requirements change, threats change. That is right, in my opinion, to really take a good look at that.

I think, in terms of readiness, there's always the question about proficiency verses currency. We need to be proficient. That comes to light in aviation. Because, right now, I believe aviation is on the ragged edge. That's our recommendation on increase in flying hours. That's flying hours to support combined arms maneuver with maneuver formations. It's one thing to go fly a helicopter, it's another thing to integrate it in a combined arms formation. That's what's missing.

The recommendation we had, which is going to cost some money, was to increase flying hours, not only for the regular Army, but also for the Reserve components—Army National Guard, Army Reserve—to get their proficiency levels up. Because that's not happening out there, even today. That's what we found when we went around and visited units.

Senator TILLIS. Thank you.

Well, in closing—and I know this is a theme that the Chair has struck many times in the year that I've been here—I'm trying to figure out how we have an—in any discussion about things that we can do to better prepare men and women, and better equip men and women, we have to talk about acquisition reform, we have to talk about why I've got in my office a 600 page RFP for the new-generation handgun. It's got 39 pages that—and when I go back to the Department, they said, "But, it's only 39 pages of specifications." I said, "Great. Then that means we can delete everything else that doesn't speak to the complexity of the process and the selection process?" Of course not. The reason that I try to bring these things up, even in things where we're talking about capability and readiness, that sort of behavior has a direct deleterious effect on our ability to provide men and women with training and the equipment they need to bring the fight to the enemy. We have to make sure that it's integrated and stay on the front stage. I know that—I know the Chair agrees.

Thank you. I've gone over my time.

Chairman MCCAIN [presiding]. Well, I thank Senator Tillis.

I know our panelists agree that it harms our credibility when we ask for more funding and we have a $2 billion cost overrun on an aircraft carrier and we have, starting with the FCS [Future Combat Systems], a long line of programs where billions of dollars were wasted, with no result. I appreciate the emphasis that you have given on this issue. We have to fix it.

Senator Donnelly.

Senator DONNELLY. Thank you, Mr. Chairman.

I want to thank all the witnesses.

Indiana doesn't have a large Active Duty presence for many of the services, but it's home to our Nation's fourth-largest National Guard unit. Many of the 14,000 Hoosiers who serve in the Guard also have spent time on Active Duty. In your report, you write of how disheartening it was to hear the discord within the Army ranks, pitting the Army National Guard against the regular Army. I heard that same disheartened sentiment among our Hoosier Guard members. From the top down, their focus has been on serving our country, our State, and our local communities. I appreciate

your call for leaders in the DOD and in Congress to do our part to keep these conversations professional and respectful while keeping in mind that there can be different viewpoints on how to best accomplish these objectives. As all of you know so well, one of our hopes in convening the Commission was to get objective input as to how to resolve this difference and others.

General Ham, how do you believe the findings of the Commission will help support the reset in that relationship between the regular Army and the Guard?

General HAM. Senator, I believe many of the recommendations that we make with regard to the total force, whether it be a legislative change that would allow for the assignment of regular Army soldiers into Army National Guard units, multi-component units that bring soldiers from all three components together in common mission, in my view, also increased readiness within the Reserve components on the cyclical basis, called the Sustained Readiness Model, that the Army has developed, and in the operational employment of the Reserve components along with the regular Army. I think all of those tend to build this sense of one Army. The same would be true for leader development courses for noncommissioned officers and officers.

General Milley, the Chief of Staff, who you all know very well, begins many of his addresses to soldiers of all components, he said, "Look at your uniform. Over your breast pocket, it says U.S. Army. It doesn't say regular Army, doesn't say Army National Guard, doesn't say Army Reserve. It says U.S. Army." That common start point is—I think is a place to begin.

Senator DONNELLY. Just to follow up on that, in the recommendations, what do you see as the most vital in helping to create that one Army and to resolve that tension?

General HAM. Senator, I'll offer two that I think are vitally important, and others may have some other views.

The first and foremost, I think, is the overarching recommendation to sustain the All-Volunteer Force. I think, if we don't do that, the rest of it might not matter. Secondly, I think is this element of adequate funding, reliably and predictably developed and delivered to the Army in all of its components, I think will go a long way to removing some of the doubt and uncertainty that exists.

Senator DONNELLY. Well, I'd like to ask the panel a different question, which is—we have 63 different recommendations for the future of the Army, and we're in a resource-constrained environment. Of those 63, what would each of you prioritize as your most important recommendation, going forward.

Mr. Lamont?

Mr. LAMONT. Manning and resourcing the total force. We're very concerned, as we've mentioned, about keeping our levels of manning such that we can respond to acceptable levels of risk. It's not just enough to have a larger Army. You'd better have them trained, equipped, and ready, or you don't gain a whole lot. It's going to be a resourcing—frankly, a resourcing picture for that manning and readiness level, as you mentioned.

Senator DONNELLY. Thank you.

General Ham?

General HAM. Senator, I think I would fall back to recommendation 6, the Congress and the administration should return to predictable and responsible budgeting processes that meet minimum funding requirements.

Senator DONNELLY. General Thurman?

General THURMAN. Thanks, Senator.

I would agree with General Ham on that. However, I would add that I believe readiness in maintaining the All-Volunteer Force is fundamental to this country. Why do I say that? I'm very worried about the declining population that is actually eligible in this country to serve in the United States military. Less than one-third is what can meet standards, in terms of the medical fitness, the aptitude, and—and that's declining. I think that's something that we've really got to pay attention to as we go down the road.

Senator DONNELLY. Thank you.

Sergeant Major?

Mr. CHANDLER. Senator, I think—it's hard for me to prioritize, because each one of these are interwoven in some aspect of preserving and sustaining the All-Volunteer Force in a total-force policy. If you're going to pin me down, budgetary stability, budgetary predictability is important.

I want to give you one area that I think is a resounding theme throughout this. This is the Army culture, the culture that all three components are interwoven, that rely on one another, that we have to do some work in order to break that culture down. That are—where many of the recommendations come from, especially in multi-component units and leader development training. I mean, if people don't want to get along, one of the best ways you can solve that is, make them stay in the same room until they work it out. I'm sure you probably have had some experience with that here.

Senator DONNELLY. Indeed, I have.

Mr. CHANDLER. I had the opportunity to serve with the Army National Guard unit in Mississippi for three years as a regular Army soldier, and that was probably the most important assignment for me in my military career culminating as the Sergeant Major of the Army, because I was forced to be in an environment, post-Desert Shield/Desert Storm, right after the brigade that I was assigned to had been declared unfit for deployment, to be a regular Army unit stationed in the same armory with the same persons. I was forced to change my view of what the Army National Guard does for the Nation. I've never forgotten it. I still stay in contact with some of those individuals that were in that brigade.

That's the type of thing that, when we talk about the total-force policy and the questions that you asked us, that we really have to get after. It's not just a policy, but that the policy is executed at the grassroots lever. The questions that you had about, you know, some—what I think—very unprofessional and uncalled for comments in open media and so forth—will get resolved over time, but it's not going to get changed in one administration. It's going to take, you know, a commitment to a long-term vision to make this work for what's best for the Army and the Nation.

Senator DONNELLY. Thank you so much.

Mr. Chairman, thank you.

Chairman MCCAIN. Senator Lee.

Senator LEE. Thank you very much, Mr. Chairman.

Thanks, to all of you, for your testimonies today and for devoting a year to this Commission and to the future of the Army.

One of the key issues that Congress asked your Commission to report on was the Aviation Restructuring Initiative, or ARI, and the future of combat aviation in the Army. In recommendation number 57, the Commission recommended retaining four Apache battalions in the National Guard, each with 18 aircraft, and committing to using the National Guard Apache battalions regularly. The report states that this would provide more wartime capacity than ARI, and would be more cost-effective. Can you please discuss for us and explain to the committee, if you would, why you determined that the—that surge capacity and strategic depth were important factors in your recommendation—in developing and making your recommendation, and what problems would the Army face if it lost strategic depth, you know, provided by the National Guard, of Apache battalions.

General THURMAN. Senator, thank you.

First off, we looked at four areas, after extensive analysis. We visited over 31 aviation units across all three components. The first thing we looked at was wartime capacity, the ability to respond and meet the war plan requirements, and then wartime surge capacity, and then to ease the burden on peacetime deployments, and then we factored in the cost, because we didn't want to come forward with a recommendation without some cost offsets. You mentioned strategic depth. There is no strategic depth if you move all of the AH–64 aircraft inside the regular Army. I would refer you to the classified annex. It has a lot of our work—analytical work in there that talks about the requirements for AH–64 attack aircraft, which, in a lot of cases, was very short as we looked at that.

One—to get to your point—it takes time to train an Apache aviator. That's a very complex system. I am a rated AH–64 Alpha pilot, not a Echo or a Delta model. That is a very sophisticated aircraft. Not only do you have to master that skill of flying the platform, but, one, can you integrate it with combined arms maneuver? We felt there needed to be depth in the force with—and what the recommendation calls for, it would give you about 280 pilots inside the National Guard—Army National Guard.

Now, the other point was, these formations need to be put on a rotational cycle, inside the force generation and actually utilized so it could offset the stress that's on the current peacetime deployments. That's what we tried to do. We offered up some cost, modest cost, in terms of reduction of Black Hawk, to offset what it would cost to put four battalions inside the Army National Guard. That is in the report. Again, a onetime cost for the Delta-model-to-Echo conversion, which would be required, is roughly a $420 million, and then another 165 million, in terms of operating and sustainment cost, is what we did.

Senator LEE. Right. Right. No, I'm pleased to hear the careful manner in which you've gone about it. I would—my staff and I have visited with members of the Utah National Guard's 1st Battalion, 211th Aviation Regiment, and there's definitely a degree and quality of Apache experience in those Guard units that I don't think can be replaced or replicated or matched anywhere else.

Last fall, Chief Warrant Officer Kent Jones, one our National Guard instructors, reached the milestone of 10,000 flying hours in the Apache, which is a record. The past two years, I've been greatly concerned about using this type of experience. How and to what extent did the Commission view these issues of pilot and crew experience as you factored in—those into this analysis?

General THURMAN. Senator, we looked at that as a—an investment, in terms of personnel. Absolutely you would want to retain some of that experience, because if you got into a major conflict, that's going to be required. If you go back to the Iraq War, we called a lot of our aviators to Active Duty that were retired, because we needed that experience back. Again, you don't build that overnight, and it takes time to do that.

Senator LEE. Great. Thank you very much.

Thank you, Mr. Chairman.

Mr. LAMONT. You might want to know that, in fact, one of the key members of our staff, on the aviation side, came from the Utah National Guard as an aviator instructor pilot.

Senator LEE. Sounds like you know how to pick them. That's great.

Thank you.

Chairman MCCAIN. Senator Shaheen.

Senator SHAHEEN. Thank you, Mr. Chairman.

Thank you——

General HAM. Senator, may I—Mr. Chairman, if I may, just for a moment, correct the record. General Thurman said that he's a rated pilot. I would, for the record, note General Thurman "was" a rated pilot. I love him dearly, but I would not get in an aircraft with him today.

[Laughter.]

Chairman MCCAIN. The airways are safe.

[Laughter.]

Chairman MCCAIN. Senator Shaheen.

Senator SHAHEEN. Thank you, Mr. Chairman.

Thank you all very much for your past service and for your willingness to be part of this Commission and work on this report.

A recent RAND report found that current NATO [North Atlantic Treaty Organization] force structure in Europe, and I quote, "cannot successfully defend the territory of its most exposed members. In the worst-case scenarios for NATO, Russia would be able to conquer the capital of Estonia in 36 hours." The Commission recommends that the Army should forward-deploy an Armored Brigade Combat Team in Europe and convert the U.S. Army-Europe Administrative Aviation Headquarters to a warfighting mission. I wonder if you could elaborate. I don't know, General Ham, if you would like to do that or if there's someone else on the panel who would like to elaborate on these recommendations and our need to bolster United States Forces in Europe to deter Russian aggression.

General HAM. Thanks, Senator.

Let me begin, and I suspect a couple of others may want to weigh in.

With regard to the Armored Brigade Combat Team, there are two issues at play here. The regular Army has nine Armored Brigade Combat Teams. They're presently all consumed in rotational

assignments. There's an Armored Brigade Combat Team that rotates to Korea. Under the model that basically is "three to make one," there are three. Same for the Mideast, and the same for Europe. There's no excess capacity in the regular Army to meet an unforeseen contingency with Armored Brigade Combat Teams. We felt there was needed capacity.

One way to get additional capacity would be to forward-station an Armored Brigade Combat Team in Europe, thereby freeing up two other regular Army Armored Brigade Combat Teams for unforeseen contingencies, but it also has the significant effect—we believe, has a significant effect on both deterrence against Russian aggression and assurance of the NATO allies. They are sorely lacking in armored brigade—or armored capability, and we think a United States brigade would be helpful.

Senator SHAHEEN. Does the National Guard have any role to play as we're looking at how we can cycle forces in and out?

General HAM. Yes, ma'am, absolutely they do. The—in our discussions with the Chief of Staff-Army, Chief National Guard Bureau, they're already looking at, How can you, on a predictable basis, employ those Armored Brigade Combat Teams—six, I believe, in the Army National Guard—how can you employ them on that rotational basis? I think, in the not-too-distant future, it might not at all be unusual to see an Army National Guard Armored Brigade Combat Team rotate for a year to Korea or to the Mideast.

Senator SHAHEEN. Thank you.

I think, given the challenges we're—that Europe is facing right now, that looking at how we can provide that kind of additional support is really important.

I want to get parochial for a bit, because the New Hampshire National Guard has experienced a 32 percent decline in force structure since 2007. This percentage is ten times the decrease in the National Guard, as a whole, during the same period. There are seven states that are smaller than New Hampshire but have a larger Guard force structure. Does the Commission have any recommendations for how to address the right Guard force structure in a State?

General HAM. We do, Senator. In fact, there's a chapter in the report dedicated to that. The law required us to conduct an assessment of the process by which Army National Guard forces are allocated amongst the States and territories. We made three recommendations. They are largely administrative. We found, in general, that the process that is used to determine the stationing of Army National Guard forces is largely sound, and there is an opportunity for all of the stakeholders, both Federal and State, to participate in the process. The one recommendation that we think was—that—or one part that was a shortcoming was that, with the establishment of the Chief of the National Guard Bureau as a four-star officer and a full member of the Joint Chiefs of Staff, that role had not been codified in that process, and particularly with relation to the Secretary of the Army and Chief of Staff of Army, who have significant responsibilities.

We thought that the process was pretty sound for all—again, for all stakeholders to weigh in when decisions were being made with regard to the allocation of Army National Guard forces.

Senator SHAHEEN. I guess I'm not quite clear. How would that affect what's happening in New Hampshire, where you've had that decline? How would that helpful—be helpful in reversing that?

General HAM. So—well, I'm not sure that—I'm not sure that—reversing might not be in the cards, but when there are—when there are force-structure changes that are recommended. For example, as we see the Army National Guard go down from a—I think, from 353,000, eventually stepping down, perhaps, to the 335,000, with the changes in aviation, there is a process by which all of the stakeholders—the adjutants general, the governors, the State legislators, the Army staff, the National Guard Bureau, indeed the—you know, there is a role for the Congress, here, in terms of funding—for all of those voices to be heard in that allocation process. There are a number of factors that are considered: ability to recruit and retain, access to training areas, the demographics of the particular State or territory that's being addressed. Again, we—while we didn't look at individual cases, we looked at the process, and it was our assessment that the process was largely found—and I think the—with the Chief of the National Guard Bureau, the Chief of Staff-Army, Secretary of the Army, and to include leadership at the Joint Staff and OSD [Office of the Secretary of Defense], I think there is a willingness to have those discussions, but albeit at some point there are some very, very difficult decisions that have to be made with regard to allocation of forces to the States and territories.

Senator SHAHEEN. Thank you very much.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Blumenthal.

Senator BLUMENTHAL. Thank you, Mr. Chairman.

I want to come back to helicopters, specifically Black Hawks and the recommendations that have been made. The Army's proposed Aviation Restructuring Initiative would move all Apaches from the Army National Guard to the regular Army, leaving the regular Army with 20 battalions. The National Guard Bureau's alternative proposal asks for 24 battalions, six with the National Guard, and 18 with the regular Army. Your report seems to find a middle ground, recommending that the Army maintain 24 AH–64 Apache battalions, 20 battalions in the regular Army and four in the National Guard. My feeling is, we need a strong Army National Guard, which does not equate for it to have Apaches, helicopters that are designed solely for combat. The Army National Guard should have combat components, and Black Hawks have, again and again over our history, proved to be, in combat situations, a critical asset and should be—should continue to be used by the National Guard, for all the reasons that you have set forth in your report, not the least of which is that an Army that trains together will fight together more effectively.

Let me ask you, General Lamont, do you agree that Black Hawks are a vital component of the Army National Guard?

Mr. LAMONT. Absolutely. Not only for their ability to—as a lift force in a combat asset, but in your domestic responses. Particularly, as you know, the Guard makes very great use of Black Hawks throughout all the domestic response issues, be it floods, be

it tornados, be it whatever is the situation. They're very, very important to the Guard.

Senator BLUMENTHAL. As a Senator from a State that has seen those Black Hawks used in those domestic situations, and a State that has experienced hurricanes, floods, tornados, I strongly agree with you.

Let me ask, General Thurman. Do you see a specific need for the Army National Guard to have Apaches, rather than keeping them in the Active component under the total-force strategy?

General THURMAN. Yes, sir, Senator, for the purpose of having strategic depth for the Nation to meet emerging requirements and the—what we found was that we don't have that once you eliminate them out of the Army National Guard. Our analysis, inside the classified annex, will lead you to that conclusion, I believe.

Senator BLUMENTHAL. Thank you.

General Thurman, you mentioned one of the elephants in the room, in my view, just a few moments ago, the rejection rate of Army volunteers for reasons relating to physical fitness and perhaps other reasons. That number that I've seen is two-thirds to three-quarters are rejected because they can't pass the physical test. I wonder how important you feel that issue is for our Army and our Marine Corps and other services that have to rely on a ready recruit force in an All-Volunteer Army.

General THURMAN. Senator, I feel very strong about that. I think fundamental to this country is maintaining the All-Volunteer Force. That is something that is easily broken, in my view. Having available manpower to—that you can recruit from, I think, is very important, and it's something that we ought to take notice of in the country as we see this population decline.

Senator BLUMENTHAL. It really is an issue of national security. If we can't field the force, we can't send them into combat, and we can't protect our Nation. I would suggest, since my time is about to expire, that there be a very intense and aggressive focus on this issue of the readiness of our young men and women seeking to come into our Volunteer Force, and what can be done in our schools, our communities, and elsewhere to send that message.

Thank you very much for your service and your excellent work on this report.

Thanks, Mr. Chairman.

Chairman MCCAIN. Senator Hirono.

Senator HIRONO. Thank you, Mr. Chairman.

Thank you for your service, all of you, and for your work on this Commission.

I'd like to follow up on concern regarding recruiting people into our military branches. General Thurman, you mentioned once again how important it is. This is not the first time that this committee has heard those concerns. Do any of you have any specific suggestions on what we can do to change these outcomes, where so few people qualify to even join our military? I mean, for example, should we be looking to expand Junior ROTC [Recruit Office Training Course] or ROTC? I'm looking for specific suggestions that you may have.

General HAM. Senator, I'll start, and perhaps Secretary Lamont, who lived in this world for a long time, may have some thoughts.

My thought was the same that you just expressed. That is a continued emphasis, or perhaps renewed emphasis, on the Junior ROTC program. While that doesn't necessarily lead directly to enlistments or to service, I think it does, in terms of building character, physical fitness, and leadership amongst America's youth, I think is a very wise investment.

Mr. LAMONT. Specifically about JROTC, they are very, very important, although I will caution you that I think we are legislatively prohibited from actually recruiting from that base. The mayors of the cities in which those schools exist love them. I have had the opportunity to visit JROTC units in Chicago, under Mayor Daley. He said, "Give me more. Give me more." We went to Philadelphia, we went to New Orleans. What they do to get these kids away from the gangs, away from inappropriate family situations—we have found that their graduate rates, their grade rates, their ability to go into higher education—far greater——

Senator HIRONO. Yes.

Mr. LAMONT.—than in our other schools. We'd love to have the ability to recruit from those people, but we're—we really can't do that. It—they're vitally important to us, let's put it that way.

Senator HIRONO. You would find that, generally, when young people are exposed to these programs, then they have an understanding—better understanding of the military and what it means, and that one would hope that there is a higher of enlistment as a result.

If the other two gentlemen would like to add, but if you pretty much agree with ROTC—but, if you have any other suggestions.

Mr. CHANDLER. Well, I think, first of all, we're limiting the conversation to what the military can do. This is not a military issue. This is a national issue, which is going to take a great deal of courage and commitment and a long-term vision to solve. By the time a person is in the JROTC program, fundamentally they're cooked. Okay? Their diet, their nutrition, the way that they exercise—although it can be adapted, their lifestyle, the way that they are brought up by their family, is going to determine whether or not they are going to be able to meet standards.

You really have quite—the military has, really, two options. They can either extend—reduce the standard and bring a person in, accepting more risk and spending more time in the training base to get them to an acceptable level, or you're going to have to increase recruitment efforts—and that's primarily other options and dollars—to get people who are qualified at the current standard to come in. I mean, all of the services compete against one another. They also compete against colleges, universities, and businesses that are looking for the same type of person. The challenge will be, Where is it, once they come into the Military Service, and specifically the Army—what are we willing to accept that risk? You have to get ahead of the bang, so to speak. That——

Senator HIRONO. Thank you.

Mr. CHANDLER.—starts at the pre-K——

Senator HIRONO. I——

Mr. CHANDLER.—you know, and the——

Senator HIRONO.—completely agree.

Mr. CHANDLER.—elementary school level of how you help adapt lifestyle choices.

Senator HIRONO. Thank you for recognizing that it's a continuity. This is one of the reasons that there are generals who have come forward to express how important it is for us to support quality early education as laying a foundation, the very kind of foundation you're talking about.

Mr. Lamont, I understand that you had the opportunity to meet with Governor Ige and General Brooks and General Logan, our TAG [The Adjutant General]. You know that we have a huge military presence in Hawaii, of course. The rebalance to the Asia Pacific is a commitment that I have paid particular attention to, representing Hawaii as I do. It includes many seapower-related actions, but there is also a strong Army presence. Would an Army of 980,000 be able to support our rebalance to the Pacific, especially recognizing the provocative behavior of China and North Korea and other global requirements?

Mr. LAMONT. As General Ham mentioned, that was—wasn't within our task, but if you want a personal opinion, I'll be happy to address it.

Senator HIRONO. Yes.

Mr. LAMONT. By the way, my visit to Hawaii was—although quite short, it was very well informed, having dealt with all three components there, and it also helped us inform on how we push forward multi-component units, because the Reserves and the Army National Guard and PACOM—Pacific Command——

Senator HIRONO. Yeah, all the——

Mr. LAMONT.—work so well——

Senator HIRONO. Yes.

Mr. LAMONT.—together. Now, maybe that's——

Senator HIRONO. I think——

Mr. LAMONT.—brought together——

Senator HIRONO.—that's the perfect model.

Mr. LAMONT.—by geographic requirements, but they truly are a model in how they work together.

To get to your question, if I can't avoid it—answering that——

Senator HIRONO. Thank you, Mr. Chairman.

Mr. LAMONT.—the situation, we're quite concerned with that level of force, quite frankly, to meet the challenge that we have in the Pacific.

Senator HIRONO. Thank you.

Thank you, Mr. Chairman. My time is——

Chairman MCCAIN. Senator Kaine.

Senator KAINE. Thank you, Mr. Chair.

Thanks, to all of you, for your service on the Commission and your testimony today.

I want to follow up in a way related to the question of Senator Hirono and other colleagues about, kind of, the young people's ability to meet standards, but sort of coming at it from a different direction, which is—Sergeant Major, your—you talked about the recruitment challenge. You know, as we're dealing with this workforce of tomorrow, the Millennials and those younger, they're a very different breed. I learn that all the time with my own kids, in terms of what they want to do. You're right that, you know, the

best and the brightest at that period of life—say, high school—colleges are competing for them, and the private sector wants to get these folks. We had a military commission—Military Compensation Review Commission that reported back to us last year, and they looked at all the compensation and benefits. A lot of that analysis was about, sort of, the fiscal realities of the personnel side of the military budget, but it was also looking at it in terms of the recruiting and the retention side. Your all's first, kind of, pillar of your recommendations is, got to maintain the All-Volunteer Force, and that assumes recruitment and retention. I would just like each of you, from your own experiences, talk about, you know, what is your sense, right now in the Army? Do we have the right recruiting and retention strategies with respect to the workforce of tomorrow, the talent pool that's out there that we want? Either as Commission members or from your own personal experiences, what things would you recommend to us that we think about to enhance the recruitment and retention ability into the Army?

General HAM. Thanks, Senator. I'll start and then—and turn to the others.

I think two elements I would highlight. In our engagements across the force, there's a lot of uncertainty. In the retention aspect, whether you're regular Army, Army National Guard, or Army Reserve, is my—they watch their numbers, they see what's happening—is my unit going to still be here in a year or two? Am I still going to be relevant? That uncertainty, I think, has certainly an effect on retention.

From the recruiting and bleeding-into-retention aspect, we heard loudly and clearly from soldiers of all components. They would like the ability to move between components more seamlessly and more easily, depending how their life situation changes. You're 18, the regular Army might make all the sense in the world. You get married, want to go to college, the Army National Guard might make all the sense in the world to do that. Then perhaps you find attracted to civil affairs, and so the Army Reserve might be a good place for you. Right now, the policies are constraining with that kind of movement.

Senator KAINE. Tom?

Mr. LAMONT. A couple of things, sir.

Our recruiting cohort's primarily 18 to 25 years of age. As you've heard today, we're roughly at the ability to look at about 25 percent of the eligible population within that cohort. That's—it's narrowing down, particularly as our economy may continue to grow and they may have other opportunities outside of the military. Our—what we call the DEP [Delayed Entry Program], that's Delayed Entry Program—two years ago, we were roughly at 32,000 waiting to come in when the opportunity and the spaces became available. We're roughly around 10,000 now, which is considered very much a floor of where we need to be to be able to reach out.

We've also mentioned today so much about the physical concerns of some of that cohort, but the behavioral aspect, as well. As we look at States, for instance, in the drug programs, where marijuana, for instance, is becoming quite common, the—available in other States—well, we still have prohibitions against folks coming

in, in that regard. We're narrowing, in many respects, the eligible cohort that we have to recruit from.

We have 11,000 recruiters throughout the Army. Our marketing budget's 280 million a year. We're also making a recommendation that we look at how we can integrate the recruiting. They're all competitive—all three components are competitive here. The Army recruits for itself. The National Guard recruits for itself. The Army Reserve recruits for itself. How can we—that competition for that same eligible person is there, but we've got to bring them together so we can all recruit. I—it's not going to be easy, and there is cultural issues, and the universal recruiter isn't—this isn't a new concept. We have to make an effort and try.

Senator KAINE. Thank you, Secretary.

Other comments? If I may, Mr. Chair, just—if I could hear from the other two witnesses if they have additional comments?

Mr. CHANDLER. Yeah, Senator. I agree with General Ham and Secretary Lamont's statements. I think that the Military Compensation and Reform Commission that made some recommendations—I was a signator of that while I was on Active Duty as part of the Department of Defense's recommendation. I think it's a very forward-looking approach. A lot of the folks that have questions are those that are currently in the current retirement system and are not going to be affected by these changes. I think it does look at a more future approach to what Millennials and others are interested in.

I would also applaud the Army's efforts with trying to think about how we can maybe change some policies that prevent us from reaching our—the higher objective. I'll use Cyber Command as a—Army Cyber as an example. You know, a big struggle with, How do you get this very specialized and unique individual—and "unique" can mean many different things—how do you get them to want to be a part of the Army, which, in general terms—and I am generalizing—is a little bit different from their experiences either in college or in—working for some corporation—and to look at things? Like, maybe the tattoo policy needs to be loosened more for them, or that we provide an opportunity to move in and out of, not only the Army, but back into the—you know, the Microsofts and the Dells of the world, and bring them back. I think those are things that we should be patient with, we should allow some experimentation with, and that we should try and focus on the strategic objective. How do we find the best people that want to come in and serve the Nation, serve their state, and be productive members of the military? I think we're on a path. We've just got to be patient with it.

Senator KAINE. General?

General THURMAN. Senator, I would add two things here to what's already been said, but I think there has to be a renewed emphasis on service to Nation in this country. That starts in the family and in the schoolhouse. We really need to get back to some of the basic values of what our principles are in the country. That's my personal opinion after watching my whole family serve throughout World War I, II, and so forth, into Vietnam.

The second thing that we looked at was having—was implementing the one personnel and pay system for the Army. Right

now, you have separate personnel databases between the Army National Guard and the regular Army. You've got to see your people enterprise. Right now, you can't. There's a program called the Integrated Pay and Personnel System that is out there being developed, and I'd highly recommend that that funding continue for that, because I think that will help what General Ham talked about, of how you can transition between components so you don't lose the talent. That would be one of my recommendations, sir.

Senator KAINE. Thank you so much, to the witnesses.

Thank you, Mr. Chair.

Chairman MCCAIN. Senator Cotton.

Senator COTTON. Thank you, gentlemen, for your important work on this matter. I apologize that I have been detained at the Banking Committee, where we had Federal Reserve Chair Yellen in her semiannual testimony.

I have reviewed the report carefully. I wanted just to get on the record a discussion about one particularly interesting idea, recommendation 22 from Appendix B on page 112, which I'll just read in full rather than asking you all to turn to it.

"The Congress should require the Secretary of Defense and Joint Staff to oversee the modeling of alternative Army design and operational concepts, including: (1) the Reconnaissance Strike Group, (2) Hybrid Battalion Task Force, (3) Striker Global Response Force, and (4) the Reconnaissance and Security Brigade Combat Team—and report on their findings within 1 year. The report to Congress should explicitly address the value of follow-on pilot programs to test further any promising any alternate force design-and-concept approaches."

This seems to me like a far-reaching, maybe even radical, proposal, and I would like to hear more on the record about it and what might be necessary to undertake that kind of transformation. Maybe if we could start with General Ham and then go to General Thurman for your comments.

General HAM. Good. Thanks, Senator.

You asked us in the law to be comprehensive in our work, and so we did. We reached out to a lot of different agencies, to include some who have thought seriously about the size, structure, and capabilities that ought be resident in the Army. Some of those viewpoints have been controversial within the Army and from those outside. We felt, nonetheless, it was important to hear from them. We did hear from a number of those who have offered these kinds of recommendations.

I guess I would say that, Senator, we didn't find any of those notions were sufficiently mature for us to make a recommendation to say we think the Army ought to adopt this model or that model, but we found elements of the four particular proposals that were mentioned, but several others, that we think certainly merit further evaluation by the Army, and indeed by the Joint Force, because recognizing that the Army is always a part of a Joint Force. Some of these implications would have—or some of these recommendations would have implications for the other services, so it's important to view this in a joint perspective.

That's—that was the genesis of that recommendation. We think there's merit in looking at these things. There are systems within

Army Training and Doctrine Command and other agencies, and we think they should take a serious evaluation of these proposals.

Senator COTTON. General Thurman.

General THURMAN. Yes, sir, Senator.

What I would say, in addition to that, I think it's important to look at these concepts and see what benefits that you can gain, in terms of overall capabilities, given the threats that we have today. There are emerging threats, as you're well aware of, out there that we may have a different look at how we may want to provide the capability to the joint force commander or the global combatant commander. I think these all warrant serious review and a look what can be used to—maybe to advance capabilities inside the Army for the future, really, is what you're looking at.

Senator COTTON. Thank you.

Mr. Lamont, Sergeant Major, anything to add to General Ham and General Thurman's comments?

Mr. CHANDLER. I'd just concur with what they said. I mean, you know, you—the Army that I've been a part of is an evolving and learning organization; and another set of eyes on how to get after the challenges, I think, is important, and I highly recommend that they move forward.

Senator COTTON. Yes. Well, sometimes evolutions can be slow, and lessons learned can be hard. I do think it's a very intriguing idea that we should take seriously as a committee and explore, going forward in the future.

Again, thank you all for your service to the country, not just now, but in many iterations previously.

Chairman MCCAIN. I'd like to thank the panel again for their great work. I think it's given us some very valuable input. I know that Senator Reed and I will look seriously at some of your proposals and discuss them with the other members of the committee, who obviously, as you can see by the participation, are very interested. We appreciate your significant contribution.

Senator Reed?

Senator REED. I'd just thank the commissioners, your colleagues that are not here, all of you, for—extraordinarily well done.

Thank you, Mr. Chairman.

Chairman MCCAIN. Thank you.

This hearing is adjourned.

[Whereupon, at 11:56 a.m., the hearing was adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

TUESDAY, FEBRUARY 23, 2016

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

U.S. PACIFIC COMMAND AND U.S. FORCES KOREA

The committee met, pursuant to notice, at 9:33 a.m., in Room SD–G50, Dirksen Senate Office Building, Senator John McCain (chairman) presiding.

Committee members present: Senators McCain, Inhofe, Ayotte, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Graham, Reed, Nelson, Manchin, Shaheen, Gillibrand, Blumenthal, Donnelly, Hirono, Kaine, King, and Heinrich.

OPENING STATEMENT OF SENATOR JOHN MCCAIN, CHAIRMAN

Chairman MCCAIN. Good morning. Since a quorum is now present, I ask the committee to consider a list of 255 pending military nominations. All of these nominations have been before the committee the required length of time.

Is there a motion to favorably report these 255 military nominations to the Senate?

Senator INHOFE. So moved.

Chairman MCCAIN. Is there a second?

Senator REED. Second.

Chairman MCCAIN. All in favor, say aye.

The motion carries.

Good morning. The Senate Armed Services Committee meets this morning to receive testimony on U.S. Pacific Command and U.S. Forces Korea in review of the defense authorization request for fiscal year 2017 and the Future Years Defense Program.

I am pleased to welcome Admiral Harris and General Scaparrotti back to this committee. I thank you both for your decades of distinguished service and for your leadership in an increasingly uncertain time.

Over the past several years, China has acted less like a "responsible stakeholder" of the rules-based order of the Asia-Pacific region and more like a bully. I note this morning's Wall Street Journal headline, "China Appears to Have Built Radar Facilities on Disputed South China Sea Islands."

China's increasingly assertive pattern of behavior calls into serious question whether China's rise will, in fact, be peaceful. Despite

United States efforts to rebalance to the Asia-Pacific, U.S. policy has failed to adapt to the scale of velocity and challenge we face.

For example, the administration has insisted that China must cease its reclamation, construction, and militarization in the South China Sea, and that it will fly, sail, and operate wherever international law allows. But after more than a year of this rhetoric, China's reclamation infrastructure, construction, and militarization have all continued.

The information referred to follows:

Last week, we saw press reports that China had deployed the HQ–9 surface-to-air missile system to Woody Island in the Paracel Islands. As I mentioned yesterday, they show a high-frequency, possibly over-the-horizon, radar on reclaimed land on Cuarteron Reef in the Spratly Islands.

If true, this deployment would represent a blatant violation of Xi Jinping's September 2015 commitment to President Obama in the Rose Garden that China "did not intend to pursue militarization."

Admiral Harris, I would like to ask today if you can confirm the reported militarization of Woody Island, the radar at Cuarteron Reef, and if you can reveal to this committee any further examples of militarization now occurring in the South China Sea that you are aware of.

As China continues to use force and coercion to unilaterally change the status quo and challenge the rules-based international order, the credibility of the administration's commitments to regional security is diminished. Indeed, China's reclamation and militarization in the South China Sea, together with China's rapid military modernization and expansion, are making it more difficult for the United States to defend our allies and our interests from military aggression.

Simply put, the administration's policy has failed.

Beijing has been willing to accept a high level of risk to achieve its strategic goals. Meanwhile, the White House's risk aversion has resulted in an indecisive and inadequate policy that has confused and alarmed our regional allies and partners. The United States must now consider fresh options to raise the cost on Beijing's behavior.

Shaping rather than reacting to Beijing's actions will mean adopting policies with a level of risk that we have been unwilling to consider up to this point. The administration must initiate a robust freedom of the seas campaign, flying and sailing wherever international law allows. This should include freedom of navigation operations designed to challenge China's excessive maritime

claims, as well as joint patrols and exercises with our allies and partners span the First Island Chain.

We must also maintain our commitment to continued sensitive reconnaissance operations, which are critical for gathering military intelligence in the Western Pacific. Despite China's protests and growing ability to threaten our aircraft, the pace and scope of these operations must continue uninterrupted.

Given the shifting military balance, we also need to take a hard look at what the future U.S. military posture in the region should look like. While the department has initiated a European Reassurance Initiative in Europe, it is clear to me that a similar Asian reassurance initiative should be considered.

Building off the recent CSIS [the Center for Strategic and International Studies] report, we should consider further steps for enhancing posture, improving infrastructure, funding additional exercises, pre-positioning additional equipment and munitions, and building partner capacity throughout the Asia-Pacific region.

Beyond my concerns about sustaining freedom of the seas, I am concerned China may also attempt to expel another country from disputed territories, such as Second Thomas Shoal, or build new infrastructure at a location like Scarborough Shoal. Given this, we should consider clarifying how the United States will respond to an attack on the territory or Armed Forces of the Philippines under the United States-Philippines mutual defense.

Finally, I believe it is time for the United States Government to explore the appropriateness of sanctions against Chinese companies involved in the reclamation that has destabilized the South China Sea and caused massive environmental destruction across this maritime domain.

While China's assertiveness poses a major long-term challenge, North Korea's destabilizing behavior continues to present a real and rising risk of conflict.

Over the past 2 months, it has defied the international community by testing a nuclear device and launching a long-range missile. These calculated cycles of provocation continue to pose a risk of violent escalation on the Korean Peninsula. That is why I am thankful for the close cooperation with our partners in Seoul between United States Forces Korea [USFK] and the ROK [Republic of Korea] Armed Forces.

I applaud the leadership of President Park for choosing to finally close the Kaesong Industrial Region, which has enriched the North with hundreds of millions of dollars in the last decade. I am also proud to have supported new congressional sanctions on North Korea.

Despite the deficit of leadership from Beijing on this issue, these two steps will bring increased pressure on the North Korean regime and its supporters.

I am very encouraged by the joint United States-Republic of Korea statement that our two countries will begin the process of consultation for deploying the Terminal High-Altitude Area Defense, THAAD, system to the Korean Peninsula. The deployment of this system by the alliance is a critical step to providing a further layer of defenses against North Korea provocations.

I look forward to hearing General Scaparrotti's perspective on the utility of the THAAD system and other ideas to enhance the United States-ROK relationship and deterrence on the peninsula.

I would call my colleagues' reminiscence to an occasion here the last time Secretary Ash Carter was here, after it had been in all of the newspapers and television and radio that the United States had finally decided to sail a ship into the areas around the disputed islands. The Secretary of Defense, in front of this committee, refused to confirm that—refused to confirm what was in the media and well-known to everyone, according to the New York Times the next day, for fear of upsetting climate talks with China. That cannot be made up. Of the 30 years that I have been on this committee, I have never seen a performance like that.

Senator Reed?

STATEMENT OF SENATOR JACK REED

Senator REED. Thank you very much, Mr. Chairman. I want to join you in welcoming the witnesses.

Gentlemen, we appreciate your long and distinguished service to the Nation, and also the service of your families throughout many, many years.

General Scaparrotti, this might be your last United States Forces Korea posture hearing. We are hearing rumors that you are being moved to a different command. But thank you for your friendship and your service over many, many years.

It is clear from the events of the last few months that we are facing a challenge of increasing complexity and instability in the region. Given North Korea's recent nuclear test and China's militarization of land features in the South China Sea, the security situation in the region seems more precarious than in many recent years. The United States has historically underwritten the peaceful development of the Asia-Pacific region with strategic alliances and a forward presence that has allowed all the countries in the region, including China, to make extraordinary economic developments in relative peace.

One of the pillars of our strategy is to provide stability and security in the region by maintaining close partnerships and alliances. From the new defense cooperation agreement with the Philippines and our rotational Marine presence in Australia, to our growing defense relationship with Vietnam, there has been great progress on implementing the administration's rebalance to Asia, despite competing resource demands from other regions. We must continue to build on these strategic partnerships and demonstrate our commitment to the region by investing sufficiently in our presence and partner capacity-building programs.

Admiral Harris, I am deeply concerned, as we all are, about China's violation of its commitment to President Obama in November not to militarize the South China Sea.

Just yesterday, CSIS released an image that appears to show that China has placed an advanced radar system on Cuarteron Reef, a land feature that China has reclaimed in the Spratly Islands. This is in addition to the HQ–9 surface-to-air missiles that it added to Woody Island in the Paracels recently.

It seems clear that China does not intend to be a responsible stakeholder in the region. I would appreciate your views on how China's recent actions affect the stability of the region.

General Scaparrotti, it seems that as Kim Jong-un has consolidated his power in North Korea, he is more and more willing to tolerate risk, as evidenced by his recent nuclear test and rocket launch. I would like to hear about how you believe the security situation on the peninsula will evolve over the next year.

Again, we appreciate you joining us this morning, look forward to your testimony, and salute your service. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. General Scaparrotti, this is perhaps your last appearance before this committee. I want to thank you for your outstanding service and your great work, particularly in these times of heightened tension. We thank you for your service to the country.

Admiral Harris, do you want to begin?

STATEMENT OF ADMIRAL HARRY B. HARRIS, JR., USN, COMMANDER, U.S. PACIFIC COMMAND

Admiral HARRIS. Thank you, sir. I would.

Thank you, Chairman McCain, Senator Reed, and distinguished members. It is my honor to once again appear before this committee.

Before I begin, on behalf of all the men and women of United States Pacific Command [PACOM], I would like to wish Senator McCaskill a speedy and full recovery.

I am pleased to be here with General Scaparrotti to discuss how PACOM is advancing America's interests across the vast Indo-Asia-Pacific.

I request, sir, that my written posture statement be submitted for the record.

Chairman MCCAIN. Without objection.

Admiral HARRIS. Since taking command of PACOM last May, I have had the extraordinary privilege of leading the 400,000 soldiers, sailors, airmen, marines, guardsmen, and civilians serving our Nation. These dedicated men and women and their families are doing an amazing job, and I am proud to serve alongside them.

I would like to briefly highlight a few regional issues since I last testified before this committee 5 months ago.

As China continues its pattern of destabilizing militarization of the South China Sea, we resumed our freedom of navigation operations there, a waterway vital to America's prosperity, where $5.3 trillion in trade traverses each year.

General Scaparrotti and I remain fully aligned in dealing with North Korea's recent underground nuclear test followed by a ballistic missile launch.

A revanchist Russia is revitalizing its ability to execute long-range strategic patrols in the Pacific, to include the basing of its newest strategic ballistic missile submarine and last month's bomber flights around Japan.

Recent terrorist attacks in Bangladesh and Indonesia underscore the fact that violent Islamic extremism is a global concern that must be crushed.

We continue to strengthen our alliances and partnerships. Japan's peace and security legislation authorizing limited collective self-defense will take effect this year. This legislation, and the revised guidelines for United States-Japan defense cooperation, will significantly increase Japan's ability to work with us.

Thanks to the great leadership of General Scaparrotti, South Korea and the United States have taken a strong and unified stance to maintain peace and stability on the Korean Peninsula. In the face of recent North Korean aggression, PACOM hosted a trilateral meeting between the United States Chairman of the Joint Chiefs General Dunford, Japanese Chairman Admiral Kawano, and South Korean Chairman General Lee. Trilateral cooperation between Japan, Korea, and the United States is a priority, and I am doing everything I can to enhance it.

Our alliance with the Philippines took an important step forward when the Philippines Supreme Court recently upheld the Enhanced Defense Cooperation Agreement, or EDCA, which will provide significant partnership and access benefits.

I am also excited about our burgeoning relationship with India, where I will visit next week. As the world's two largest democracies, we are uniquely poised to help bring greater security and prosperity to the entire region.

Two visionary policies are now coinciding as the United States rebalances west of the Indo-Asia-Pacific and India implements its Act East policy.

Last October's Malabar exercise between India, Japan, and the United States shows the security interconnectedness of the Indian Ocean, Asia, and the Pacific Ocean. I rely heavily on Australia, not only for its advanced military capabilities across all domains, but importantly for Australia's warfighting experience and leadership in operations around the world.

These examples clearly demonstrate to me that the United States is a security partner of choice in the Indo-Asia-Pacific. It is also why I believe that our strategic rebalance has taken hold. Given that four of the five strategic problem sets identified by Secretary Carter—China, North Korea, Russia, and ISIL [the Islamic State of Iraq and the Levant]—are in our region, I would say that we cannot rebalance fast enough.

But there is more work to do, and we must not lose the momentum, so I ask this committee to support continued investment in the future capabilities. I need weapon systems of increased lethality that go faster, go further, and are more survivable.

If funding uncertainties continue, the U.S. will experience reduced warfighting capabilities, so I urge Congress to repeal sequestration.

Finally, I would like to thank this committee and Congress for your enduring support to PACOM, and the men and women in uniform, our civilian teammates, and our families. Thank you, and I look forward to your questions, sir.

[The prepared statement of Admiral Harris follows:]

PREPARED STATEMENT BY ADMIRAL HARRY B. HARRIS JR.

Chairman McCain, Senator Reed, and distinguished members of the committee, thank you for the opportunity to appear before you today. This is my first posture assessment since taking command of U.S. Pacific Command (USPACOM) in May

2015. Over the past 9 months, I've had the extraordinary privilege to lead 378,000 Soldiers, Sailors, Airmen, Marines, Coast Guardsmen, and civilians selflessly serving our nation. These dedicated men and women and their families are doing an amazing job, and I'm proud to serve alongside them.

USPACOM protects and defends, in concert with other U.S. Government agencies, the territory of the U.S., its people, and its interests. With allies and partners, USPACOM enhances stability in the Indo-Asia-Pacific region by promoting security cooperation, encouraging peaceful development, responding to contingencies, deterring aggression, and, when necessary, fighting to win. This approach is based on military preparedness, partnership, and presence.

The strategic importance of the Indo-Asia-Pacific region cannot be overstated. Recognition of clear military, economic, and demographic trends inspired President Obama to undertake a "Rebalance" strategy in 2011. The Rebalance, a strategic whole of government effort, guides and reinforces our military efforts, integrating with diplomatic, political, and economic initiatives.

In August of 2015, Secretary of Defense Carter described four elements of the military component of the Asia-Pacific Rebalance:

1) investing in future capabilities relevant to the challenges in the Asia-Pacific;
2) fielding the right numbers of existing capabilities to the Asia-Pacific;
3) adapting our regional force posture; and
4) reinforcing alliances and partnerships.

Despite other pressing challenges around the world, and because of the legislative and budgetary support of Congress, we achieved momentum in each element above. I believe we must continue, and even increase, this momentum, as the strategic imperative behind the Rebalance remains valid.

What follows is my assessment of the Indo-Asia-Pacific and USPACOM's part of the Rebalance. I will describe the security challenges and highlight regional opportunities with strategic value. I will discuss the value of U.S. strategic force posture and forward presence to the Rebalance—how it improves our readiness to fight tonight, enhances our ability to reassure allies and partners, and maintain stability. I will then explain how USPACOM strengthens our alliances and builds critical regional partnerships that deliver strategic benefit while enhancing U.S. readiness to protect and defend U.S. interests. Finally, I will highlight critical needs and seek your support for budgetary and legislative actions in the coming weeks and months.

SECURITY ENVIRONMENT

The Indo-Asia-Pacific has been a largely peaceful region for over 70 years, in large part, because of the system of rules and norms established and underpinned by robust U.S. presence and anchored by a series of treaty alliances and bilateral relationships with countries in the region. Regional nations, including and perhaps especially China, have benefited because of the security architecture provided by the United States and our allies. The Indo-Asia-Pacific is critically important to United States commerce, diplomacy, and security. Estimates predict up to 70 percent of the world's population will reside in the region by the middle of this century. Within the region are the world's two largest economies after the United States (China and Japan), and five of the smallest economies. The region contains the world's most populous nation (China), largest democracy (India), largest Muslim-majority state (Indonesia), and smallest republic (Nauru). It contains seven of the ten largest standing militaries in the world, five nuclear nations, and five of the U.S.' seven mutual defense treaty alliances.

The region's environment, history, cultural and political diversity, and robust military capabilities present dynamic strategic challenges. Self-interested actors challenge the existing international rules-based order that helped underwrite peace and prosperity in the region for over 70 years. North Korea continues its provocative, coercive behavior and weapons development. Chinese coercion, artificial island construction, and militarization in the South China Sea threaten the most fundamental aspect of global prosperity—freedom of navigation. Other challenges include the movement and facilitation of violent extremists to and from the Middle East, transnational criminal activity (including human trafficking and illicit drugs), and an increasingly revanchist and assertive Russia. USPACOM enhances U.S. Force posture, presence, and resiliency in the region, modernizing U.S. Force capability to ensure forces are ready to fight and win any contingency. USPACOM is working with allies and partners on a bilateral—and increasingly multilateral—basis to address these challenges. Together, we enhance capability and capacity to respond to the range of threats endemic to the region. We are stronger together.

OVERVIEW

A number of challenges has emerged over the past year that place stability and security at risk. In July 2015, China largely completed land reclamation at seven sites in the South China Sea and is finishing runways, infrastructure, and systems to militarize what are, in effect, man-made bases, significantly raising regional tensions. China views the South China Sea as a strategic frontline in their quest to dominate East Asia out to the Second Island Chain. I view their thinking as approaching a new "Great Game." Last month, North Korea conducted its fourth nuclear test in ten years and last August, raised tensions with a land-mine attack in the Demilitarized Zone (DMZ). Russia continues modernizing its military forces, homeporting its newest *Dolgurukiy*-class ballistic missile submarine in Petropavlovsk, and revitalizing its ability to execute long range strategic patrols, highlighted by last July's deployment of Tu-95 Bear bombers near Alaska and California, and last month's bomber flights around Japan. Terrorist attacks in Bangladesh and Indonesia underscore the fact that violent Islamic extremism is a global problem.

While these events threaten the region's peace and prosperity, there was positive progress as well. Last September, Japan passed its Peace and Security Legislation which authorizes collective self-defense in limited circumstances. The Philippines remained committed to solving its maritime dispute with China peacefully through arbitration under the Law of the Sea Convention. The Philippine Supreme Court upheld the Philippine's domestic approval of the Enhanced Defense Cooperation Agreement (EDCA), which will provide significant partnership and access benefits. India underscored its "Act East" policy by crafting a Joint Strategic Vision of the Asia-Pacific and Indian Ocean Region with the United States and is progressing toward signing essential foundational agreements that will enable deeper ties, improve interoperability, and increase cooperation. Singapore has increased routine access to United States military assets such as Littoral Combat Ships and P–3/P–8 aircraft. Trilateral cooperation among allies is increasing and multilateral forums such as the Association of South East Nations (ASEAN) are focusing on shared security challenges in the region. These events demonstrate that Indo-Asia-Pacific countries are increasingly viewing the United States as their security partner of choice. That said, significant challenges remain.

KEY CHALLENGES

North Korea: Though North Korea is not yet an existential threat to the United States, it remains the most dangerous and unpredictable actor in the Indo-Asia-Pacific. Kim Jung Un regularly conducts provocative and escalatory actions. Just last month, North Korea conducted an underground nuclear test, the fourth since 2006, which violated its obligations and commitments under international law, including several UN Security Council Resolutions. Additionally, this month, North Korea conducted a ballistic missile test under the guise of launching a satellite. These tests, coupled with the unprovoked mine attack on Republic of Korea (ROK) soldiers in the DMZ last August, are the latest in a series of actions intended to destabilize the Peninsula, challenge ROK President Park's leadership, and raise tensions.

While the international community urges North Korea to live up to its international obligations and return to credible negotiations under the Six-Party Talks framework, Pyongyang has shown no willingness to seriously discuss denuclearization. Kim Jung Un is on a quest for nuclear weapons, and the technology to miniaturize them and deliver them intercontinentally. Additional nuclear tests are likely to occur. North Korea will also likely test and field improved mobile intercontinental ballistic missiles and intermediate range ballistic missiles (MUSUDAN) capable of reaching Japan, and actively pursue its submarine launched ballistic missile development program. On 6 February, North Korea launched its second space vehicle in direct violation of several United Nations Security Council Resolutions, firing a complex, multi-stage rocket that also forms the basis of an intercontinental ballistic missile. North Korea announced its intent to conduct "annual and regular" drills to advance this prohibited capability. I have no doubt they will do so.

North Korea refuses to abide by the rules and norms of the international community and represents a clear danger to regional peace, prosperity, and stability. In the cyber domain, North Korea has lesser cyber technical capabilities than other states, but has already demonstrated them as a way to impose costly damage to commercial entities. This was demonstrated in the high-profile attack on Sony Pictures Entertainment. North Korea sells weapons and weapons-related technologies in conflict with United Nation Security Council Resolution restrictions.

Chinese Military Modernization and Strategic Intent: China's military modernization program is transforming its forces into a high-tech military to achieve its dream of regional dominance, with growing aspirations of global reach and influence. Given China's economic rise, the goal may be natural; however, the lack of transparency on China's overall strategic intent behind its military investments and activities creates instability and regional anxiety.

China's navy and air forces are rapidly fielding advanced warships and planes. Over the past decade, the Chinese navy has significantly increased in size and is much more capable in every way. Chinese forces are operating at a higher tempo, in more places, and with greater sophistication than ever before. Chinese shipyards are constructing China's first cruiser-sized warship, their first indigenous aircraft carrier, and many classes of patrol boats, frigates, and destroyers. Newer, more capable submarines continue replacing older ones. New fighters (including the "Gen-5" J–31), bombers, special mission aircraft, and unmanned systems give China greater air capabilities, lethality, and flexibility. These advances have been aided and accelerated by systemic technology theft, enabling China to skip decades of research and development and go straight into production. Finally, the People's Liberation Army (PLA) is undergoing dramatic reorganization to improve its command and control of joint forces.

China's strategic capabilities are significant. The *Jin*-class ballistic missile submarine (Type 094) carries the JL–2 submarine launched ballistic missile capable of reaching parts of the continental United States and represents China's first credible sea-based nuclear deterrent. New road-mobile intercontinental ballistic missiles provide more strike options and greater survivability.

In the maritime domain, China's Navy (PLA(N)) is increasing its routine operations in the Indian Ocean, expanding the area and duration of operations and exercises in the Western and Central Pacific Ocean, and is beginning to act as a global navy—venturing into other areas, including Europe, North America, South America, Africa, and the Middle East.

While China's actions are causing concern among neighbors in the region, there are potential opportunities. Its small but growing number of bilateral and multinational exercises suggests Beijing's greater willingness to interact with partners. Support for UN Peace Keeping missions is an encouraging sign of Chinese willingness to play a more active and constructive role in international affairs. My goal is to convince China that the best way ahead is through peaceful cooperation, participation and conformance in a rules-based order, and by honoring agreements made in good faith.

Territorial Disputes: The political and military dynamic in the East and South China Seas is changing, and tactical miscalculations between claimants present threats to stability and security.

In the East China Sea, tensions between Japan and China over the Senkaku Islands continue. China seeks to challenge Japan's administrative control over the islands by deploying warships into the area, sailing coast guard ships inside the territorial waters surrounding the Senkakus, and intercepting Japanese reconnaissance flights. In April of 2014, President Obama affirmed that Article V of the United States-Japan Security Treaty includes the Senkaku Islands. I am bound to protect that promise.

In the South China Sea, the situation is more complex. There are six claimants to disputed features: Brunei, China, Malaysia, the Philippines, Taiwan, and Vietnam, and there are three notable disputes over territorial sovereignty. The first dispute is between China, Taiwan, and Vietnam over the sovereignty of the Paracel Islands, which China took by force from Vietnam and has occupied since 1974. The second dispute is between China, Taiwan, and the Philippines over Scarborough Reef, of which China seized control in 2012. The third dispute involves multiple claimants within the Spratly Islands where China, Taiwan, Vietnam, Brunei, Malaysia, and the Philippines each claim sovereignty over various features.

The United States takes no position on competing sovereignty claims in the South China Sea, but we encourage all countries to uphold international law, as reflected in the Law of the Sea Convention, which ensures unimpeded lawful commerce, freedom of navigation and overflight, and peaceful dispute resolution.

While China has not clearly defined the scope of its maritime claims in the South China Sea, China has unilaterally changed the status quo. Chinese leaders seem to believe that, through coercion, intimidation, and force, they can bypass accepted methods of dispute resolution. They have demonstrated this through aggressive artificial island building, and by growing a fleet of "white hull" ships and fishing vessels whose purpose is to dominate the area without the appearance of overt military force. China is now turning its artificial island projects into operating bases for forward-staging military capabilities—under the rubric of being civilian facilities. For

example in January 2016, China landed civilian aircraft on its man-made airbase at Fiery Cross Reef. The PLA is installing new or improved radars, communications systems, and other military capabilities at seven separate reclaimed bases. The scale and scope of these projects are inconsistent with the China's stated purpose of supporting fishermen, commercial shipping, and search and rescue. Although Vietnam, Malaysia, the Philippines, and Taiwan have also conducted land reclamation in the South China Sea, their total—approximately 115 acres over 45 years—is dwarfed by the size, scope, speed, and scale of China's massive buildup. In a little over two years, China has constructed more than 3,000 acres of artificial land—heightening environmental concerns by destroying the fragile ecosystem of the South China Sea. Professor John McManus of the University of Miami has called this the most rapid rate of permanent loss of coral reef area in human history. Equally concerning is Beijing's repeated pronouncements that it will not accept any decision issued by the arbitral tribunal in the case filed by the Philippines under the Law of the Sea Convention..

China's actions undermine the international rules-based order. Furthermore, these actions have driven China's South China Sea neighbors to expand their own military capabilities and seek stronger relationships with the United States and one another. The result is a situation that is ripe for miscalculation that could escalate to conflicts that no one wants, in an area vital to global prosperity.

While preventing conflict in South China Sea requires patience and transparency among all parties, time favors the Chinese. For the United States to continue to play a constructive role in preventing conflict and supporting peaceful dispute resolution requires national resolve and a willingness to apply all elements of national power in the right measure to influence all claimants to use international dispute resolution mechanisms. For example, USPACOM recently conducted freedom of navigation operations in the South China Sea—the continuation of a longstanding United States practice. These operations are an important military tool to demonstrate America's commitment to the rule of law, including the fundamental concept of freedom of navigation. The U.S. will sail, fly, and operate wherever international law allows.

Russian Assertiveness: Though focused on Europe and the Middle East, Russia is engaged politically and militarily in the Indo-Asia-Pacific. Russian activity is assertive, but not confrontational. Ships and submarines of the Russian Pacific Fleet and long range aircraft routinely demonstrate Russia's message that it is a Pacific power.

Russian ballistic missile and attack submarines remain especially active in the region. The arrival in late 2015 of Russia's newest class of nuclear ballistic missile submarine (DOLGORUKIY SSBN) in the Far East is part of a modernization program for the Russian Pacific Fleet and signals the seriousness with which Moscow views this region.

Violent Extremism / Foreign Fighters: The Indo-Asia-Pacific has the largest Muslim population on the planet and extremism is a rising challenge. Of the many extremist groups in the Indo-Asia-Pacific, those connected to Islamic State of Iraq and the Levant (ISIL) or al Qaeda (AQ) are of greatest concern. Foreign fighters from the Indo-Asia-Pacific have contributed to violence in Syria and Iraq and pose a growing threat to security in their home countries upon their return. Attacks in Australia and Bangladesh underscore regional concerns about self-radicalized actors. Small but growing numbers of Bangladeshi, Indonesian, and Philippine extremists have pledged fealty to ISIL, and threats to host nation and Western interests are rising. USPACOM—in coordination with USSOCOM—and partner nations are focused on disrupting these extremist networks.

Transnational Crime: Transnational Criminal Organizations (TCOs), many operating sophisticated global enterprises that traffic in human beings, weapons, drugs, and other illicit substances, exist throughout the Indo-Asia-Pacific. The revenue from criminal endeavors threatens stability and undermines human rights. Corruption follows wherever these organizations flourish, weakening governments and contributing to regional instability.

Methamphetamine and amphetamine-type stimulants continue to be the primary drug threat in the region. Joint Interagency Task Force-West (JIATF–W) reports that at least 90 percent of the precursor chemical seizures potentially destined for illicit methamphetamine production originates in China. Maritime container shipments of China-sourced chemicals are diverted for methamphetamine and heroin/opioid production in Mexico—a direct threat to the United States Homeland. The Asia-Pacific is also a growing, lucrative market for illicit narcotics produced in the Western Hemisphere. Just last week, JIATF–W coordinated with French authorities in French Polynesia to apprehend a sailing vessel located with almost 750 kilograms of cocaine.

Nearly 36 million victims of human trafficking are estimated worldwide and nearly two-thirds are from Asia. Women and children—especially those from the lowest socioeconomic sectors—are the most vulnerable. Roughly half of those 36 million victims end up in the commercial sex trade, while others are forced into difficult and dangerous positions in factories, farms, as child soldiers, or as domestic servants. While much remains to be done, USPACOM forces, including JIATF–W, are building partner capacity and sharing intelligence in order to combat these transnational threats.

Proliferation Issues: The Indo-Asia-Pacific region has the busiest maritime and air ports in the world. Developing technology has outpaced many nations' ability to effectively manage export controls. Trade includes dual-use technology—commercial items controlled by the nuclear, ballistic missile, and chemical/biological weapons control regimes, including manufactured or re-exported materials from other nations with limited export control enforcement.

USPACOM's Countering Weapons of Mass Destruction (CWMD) community supports counter-proliferation operations throughout the Indo-Asia-Pacific region. USPACOM addresses concerns through key leader engagements, combined and joint exercises, and international security exchanges focused on counter proliferation activities. Recent success stories include Vietnam joining 104 nations as an endorsee of the Proliferation Security Initiative (PSI). The PSI rotational exercise series provides a framework for partner nations to improve legal authorities and operational capabilities to interdict WMD, delivery systems, and other related materials. Proactive dialogue under PSI is vital to reducing WMD proliferation.

USPACOM works with the Armed Forces of the Philippines to enhance military to military interoperability and provide assistance to military first responders' capability to respond to a WMD. Under section 1204 of the fiscal year 2014 National Defense Authorization Act (NDAA), the primary objective of USPACOM's WMD assistance is to train and equip first responders. In Aug 2015, USPACOM, Service Components, and combat support agencies such as the Defense Threat Reduction Agency provided the Armed Forces of the Philippines (AFP) a "first class" Chemical, Biological, Radiation, Nuclear (CBRN) Defense capability. Under these section 1204 authorities, USPACOM will begin to work with Thailand, Vietnam, and Malaysia to enhance their capacity to respond to a WMD event.

Natural Disasters: The Indo-Asia-Pacific remains the world's most disaster-prone region, experiencing over 2,700 disasters that affected nearly 1.6 billion people in the past decade alone. In addition to seismic and weather disasters, areas of large populations, dense living conditions, and poor sanitation in the region create optimal conditions for the rapid spread of diseases. U.S. Forces regularly train with allies and partners in disaster relief operations and are called upon often to respond to tragic events.

USPACOM's Center for Excellence for Disaster Management (CFE–DM) increases regional governments' readiness to respond to natural disasters by developing lessons learned and providing best practices. Many of the lessons learned and preparedness measures implemented after Typhoon Haiyan (Operation Damayan, November 2013) reduced damage and loss of life when Typhoon Hagupit struck the Philippines in 2014. To help USPACOM rapidly respond to future natural disasters, Vietnam is allowing sets of vehicles, equipment, and supplies to be prepositioned within its borders for disaster preparedness purposes. USPACOM will continue improving pre-crisis preparedness and working with allies and partners to improve responses whenever disasters strike, but it is important to note that disaster preparedness cannot overtake traditional military readiness as our focus.

STRATEGIC FORCE POSTURE IN THE INDO-ASIA-PACIFIC

The tyranny of distance and short indications and warnings timelines place a premium on robust, modern, and agile forward-stationed forces at high levels of readiness. USPACOM requires a force posture that credibly communicates U.S. resolve, strengthens alliances and partnerships, prevents conflict, and in the event of crisis, responds rapidly across the full range of military operations. USPACOM's strategic force posture is also supported by the deployment of rotational forces and the fielding of new capabilities and concepts that address operational shortfalls and critical gaps.

Global Force Management (GFM): In support of the Rebalance, the Department has undertaken GFM initiatives that include the deployment of Littoral Combat Ships to Singapore, replacing the aircraft carrier USS *George Washington* in Japan with the more capable USS *Ronald Reagan,* the deployment of two additional ballistic missile defense-capable surface ships to Japan, and the stationing of additional submarines and a submarine tender in Guam. The Air Force deploys a broad

range of aircraft as part of its Theater Force Package model including B–52s, F–22s, F–16s, E–8s, and RC–135s. The Army forward deployed a second ballistic missile defense radar in Japan, maintained a THAAD battery in Guam, and delivered training and presence across the region through Pacific Pathways, enhancing partnership opportunities without permanent basing. The Army also continues updating Prepositioned Stocks (APS) and advocating for the placement of Disaster Response activity sets across Southeast Asia. The Marine Corps continues to execute the Defense Policy Review Initiatives (DPRI), which will reduce the Marine Corps footprint in Japan and distribute Marine Air Ground Task Force (MAGTF) capability across the region. The Marine Corps is also expanding rotational presence in Australia through its Marine Rotational Force-Darwin initiative. USPACOM plans to improve rotational force presence in the Philippines via the Enhanced Defense Cooperation Agreement (EDCA) and establishing USAF dispersal capabilities in the Commonwealth of the Northern Mariana Islands (CNMI) and in the Northern Territory of Australia. Rotational forces west of the International Date Line are positioned to deter and defeat potential aggressors in the region. Finally, we are beginning consultations with the government of South Korea for the placement of a Terminal High Altitude Air Defense capability on the Korean Peninsula.

Posture Initiatives: The size and scope of forward stationed forces and the challenges within the security environment require recapitalization and improvement to infrastructure in theater. To that end, fiscal year 2016 military construction projects largely reflect requirements that support fielding new capabilities in the region, to include the F–35 Joint Strike Fighter, CV–22 Osprey, C–130J Hercules, and F–22 Raptor. Additional investments support resiliency initiatives and infrastructure recapitalization in Australia, Guam, CNMI, Hawaii, and Japan; critical munitions throughput recapitalization in California (Military Ocean Terminal Concord); and quality of life investments for our forces in South Korea and Japan.

Additionally, USPACOM's force posture strategy seeks to provide the correct level of capital investment to support established posture initiatives and commitments, including efforts in Korea (Yongsan Relocation Plan and Land Partnership Plan) and Japan (Okinawa Consolidation and the Defense Policy Review Initiative). In support of these initiatives, the Government of Japan committed up to $3.1 billion to help realign United States Marines from Okinawa to Guam and other locations, and $4.5 billion to expand the airfield and associated facilities at Marine Corps Air Station Iwakuni. Korea and Japan maintain robust host nation funded construction programs, which play vital roles in supporting United States presence and enduring capabilities in the region. These vital partner contributions require the Services to program Planning and Design funds to ensure our allies deliver facilities that meet our requirements.

Furthermore, USPACOM is expanding its presence in various parts of the region to include completing the permanent stationing of THAAD on Guam, the addition of a submarine and sub tender in Guam, additional Aegis BMD capable ships to Japan, and seeking the assignment of additional Intelligence, Surveillance, and Reconnaissance (ISR) assets in the region. In support of the Rebalance, USPACOM is in the midst of executing four major Force Posture initiatives: (1) United States-Japan Defense Policy Review Initiative (DPRI) / USMC Distributed Laydown, (2) United States Forces Korea Realignment, (3) Resiliency Efforts, and (4) Agile Logistics.

- **DPRI:** USPACOM is making progress on DPRI/USMC Distributed Laydown initiatives; however, significant Japanese political challenges remain. Consolidation of United States Marines in Japan is dependent upon completion of Okinawa construction efforts to include the Futenma Replacement Facility (FRF). In spite of the Government of Japan (GOJ) political resolve and dedication of resources, progress on relocating Marines from Futenma to Camp Schwab is slow going. GOJ budgeted $258M in fiscal year 2015 for 200 projects, but only 9 facilities have been completed with an additional 8 under construction. GOJ faces challenges in several areas, including overcoming Nago City obstruction impacting construction and controlling protester interference. The central government has dispatched police officers from the mainland to Okinawa to assist the Okinawa Prefectural Police in managing protest activity in and around United States bases in Okinawa. However, as of this writing, very little progress has been made in improving the situation and protests continue to escalate. While the issues in Okinawa continue, USPACOM made progress in laying the groundwork for relocating 5,000 Marines to Guam. Tied to the Guam effort, DOD is aggressively pursuing the establishment of the CNMI Joint Military Training (JMT) Area to mitigate joint training deficiencies in the region.
- **USFK Realignment:** The consolidation of United States forces in Korea via the Land Partnership Program (LPP) and Yongsan Relocation Program (YRP)

is moving ahead at full-speed. Construction will triple the size of Camp Humphreys and increase the base's population to 36,000 troops and family members. The ROK is bearing the majority of the relocation's cost, committing over $7.5 billion to the project. USPACOM appreciates Congress' continued support of DOD's largest peace-time relocation project.

- **Resiliency Efforts:** USPACOM resiliency efforts include investment in a more robust transportation infrastructure in ally and partner countries, mitigation of single points of failure via the dispersal and optimization of critical enablers, such as communication nodes, fuel, medical, and logistic support equipment, and hardening facilities. For example, USPACOM is hardening facilities in Guam and CNMI as well as enhancing airfields at dispersed sites throughout the theater.
- **Agile Logistics:** Due to time and distance required to move assets within the USPACOM region, it is imperative to invest in infrastructure to ensure logistics commodities—munitions, fuel, and other war materiel—are properly prepositioned, secured, and available to meet requirements. USPACOM continues to build capacity for pre-positioned war reserve fuel stocks and invest in munitions, fuel, and other war materiel facilities and infrastructure throughout the theater. For example, critical munitions throughput recapitalization in California (Military Ocean Terminal Concord) is necessary to support USPACOM plans and operations.

Readiness: USPACOM is a "fight tonight" theater with short timelines across vast spaces. Threats such as North Korea—which has over a hundred thousand rockets aimed at Seoul—require United States military forces in the region maintain a high level of readiness to respond rapidly to a crisis. USPACOM's readiness is evaluated against its ability to execute operational and contingency plans, which place a premium on forward-stationed, ready forces that can exercise, train, and operate with our partner nations' militaries and follow-on forces able to respond to operational contingencies.

Forward-stationed forces west of the International Date Line increase decision space and decrease response time, bolster the confidence of allies and partners, and reduce the chance of miscalculation by potential adversaries.

The ability of the U.S. to surge and globally maneuver ready forces is an asymmetric advantage that must be maintained. Over the past two decades of war, the U.S. has of necessity prioritized the readiness of deploying forces at the expense of follow-on-forces and critical investments needed to outpace emerging threats. A shortage of ready surge forces resulting from high operational demands, delayed maintenance periods due to sequestration, and training pipeline shortfalls limit responsiveness to emergent contingencies and greatly increase risk. These challenges grow each year as our forces downsize while continuing to deploy at unprecedented rates.

Fiscal uncertainty requires the Department to accept risk in long-term engagement opportunities with strategic consequences to U.S. relations and prestige. Continued budget uncertainty and changes in fiscal assumptions in the Future Years Defense Program (FYDP) degrade USPACOM's ability to plan and program, leading to sub-optimal utilization of resources. Services must be able to develop and execute long-term programs for modernization while meeting current readiness needs. Much of the supporting infrastructure in the Pacific and on the West Coast of the U.S. mainland was established during World War II and during the early years of the Cold War. The infrastructure requires investment to extend its service life but the Services struggle to maintain infrastructure sustainment, restoration, and modernization accounts at appropriate levels. If funding uncertainties continue, the U.S. will experience reduced warfighting capabilities and increased challenges in pacing maturing adversary threats.

ALLIES AND PARTNERS

USPACOM's forward presence, posture, and readiness reassure allies and partners of United States commitment to security in the Indo-Asia-Pacific. Strengthening these relationships is critical to meeting the challenges and seizing opportunities. Through bi-lateral and multi-lateral relationships and activities, USPACOM is building a community of like-minded nations that are committed to maintaining of the international rules-based order. The United States's five Indo-Asia-Pacific treaty allies are Australia, Japan, Republic of Korea, Philippines, and Thailand. In addition, the United States continues to strengthen partnerships with New Zealand, India, and Singapore, and build new relationships that advance common interests with Vietnam, Mongolia, Malaysia and Indonesia. This year, USPACOM plans to leverage Fiscal Year 2016 National Defense Authorization Act, Public Law 114–92,

section 1263, "South China Sea Initiative" (section 1263) authority, to begin implementing the Secretary's Southeast Asia Maritime Security Initiative (MSI)—an initiative Secretary Carter announced at the Shangri-La Dialogue that will increase the maritime security and maritime domain awareness capacity of the Philippines, Vietnam, Malaysia, Indonesia, and Thailand. The Secretary has made available $50 million in fiscal year 2016 funding and announced an additional $375 million from fiscal year 2017–2020 to conduct MSI activities pursuant to this authority. MSI takes a regional approach to help our partners better sense activity within their sovereign territorial domain, share information with domestic joint and international combined forces, and contribute to regional peace and stability operations. I'm also looking forward to improving military-to-military relationships with Burma and Sri Lanka, once political conditions permit. Strengthening and modernizing alliances and partnerships is a top USPACOM priority.

ALLIES

Japan: The US–Japan alliance remains strong and operational cooperation between USPACOM and the Japan Joint Staff continues to increase. Our relationship is a cornerstone of regional stability. On September 19th, 2015 Japan's Peace and Security Legislation authorizing limited collective self-defense passed into law and will take effect this year. Japan's Peace and Security Legislation and the revised Guidelines for United States-Japan Defense Cooperation will significantly increase Japan's ability to contribute to peace and security. Japan's leadership has worked toward lessoning historical tensions and improving cooperation and collaboration with the Republic of Korea (ROK) in areas such as information sharing and disaster response The Government of Japan supports USPACOM activities to maintain freedom of navigation in the South China Sea. In another growing relationship, a Japanese destroyer participated in the United States-India-Japan trilateral exercise MALABAR in October and then transited the South China Sea in company with the USS *Theodore Roosevelt* in early November. Japanese P–3s exercised with the Philippines and operated in the South China Sea while returning to Japan from Southwest Asia.

Republic of Korea: The ROK alliance remains strong, and I am optimistic that the Japan-ROK relationship will continue to improve, which I hold as a top priority. The United States and ROK agreed to delay wartime operational control (OPCON) transfer and adopt a conditions-based approach, rather than following a calendar-based deadline. Secretary of Defense Carter and his counter-part, Minister Han, signed the Conditions Based OPCON Transition Plan (COTP) in November 2015 at the annual Security Consultative Meeting in Seoul. This is part of American and ROK efforts to modernize the alliance to better address continued threats and provocations from North Korea such as January's nuclear test and February's space launch. Trilateral cooperation with Japan is the next logical step to ensure both countries' mutual security.

Australia: The United States-Australia alliance anchors peace and stability in the region. Australia plays a leading role in regional security and capacity-building efforts and addressing disaster response. Australia is a key contributor to global security, contributing to counter-ISIL efforts in Iraq and the Resolute Support mission in Afghanistan. With the implementation of force posture initiatives, the Marine Rotational Force-Darwin successfully completed its third rotation while increasing its presence from 250 to 1,177 U.S. Marines. The fourth rotation begins in April 2016. The United States and Australia are increasing collaboration in counter-terrorism, space, cyber, integrated air missile defense, and regional capacity building. Australia is procuring high-tech U.S. platforms that will increase interoperability. These include the F–35A Lightning II, P–8 Poseidon, C–17 Globemaster III, EA–18G Growler, Global Hawk UAVs, and MH–60R helicopters. To enhance synchronization and integration, the Australian Government provides a Flag Officer and a Senior Executive (civilian) to USPACOM and a General Officer to U.S. Army Pacific staffs on a full-time basis.

Philippines: The alliance between the Philippines and the United States has been important for more than 65 years. The Philippines Supreme Court recently upheld the Philippine's domestic approval of the Enhanced Defense Cooperation Agreement (EDCA) which will improve United States access and build Philippine military capacity by addressing capability gaps, long-term modernization, Maritime Security (MARSEC), Maritime Domain Awareness (MDA), and disaster response capabilities. USPACOM is exploring way to use MSI to realize Philippines MARSEC and MDA capability development. The Philippine Navy has made good use of two previously awarded Excess Defense Article (EDA) U.S. Coast Guard Cutters. During the 2015 Cooperation Readiness Afloat and Training (CARAT) exercise, one of the

EDA cutters (BRP RAMON A. ALCARAZ PF–16) operated with the USS *Fort Worth,* enhancing our shared security concerns. During the 2015 Asia-Pacific Economic Cooperation summit, President Obama announced the award of a third former United States Coast Guard cutter through the EDA program, which will significantly enhance the Philippine Navy's maritime security capabilities, and, through MSI, we are exploring ways to ensure that this vessel is delivered fully mission capable. U.S. P–3s and P–8s already operate from Clark Air Base on a rotational basis, and the EDCA will increase United States access in crisis to Philippine facilities that are important strategic locations. USPACOM provides information sharing and training for the Armed Forces of the Philippines in the areas of MARSEC and MDA, Additionally, USPACOM provided $3.5 million in Chemical, Biological, Radiological, and Nuclear (CBRN) equipment and two years of sustainment training to the Armed Forces Philippines Defense Initiative through the CBRN Defense programs. USPACOM appreciates the continued support of the Defense Threat Reduction Agency, Joint Program Executive Office, and Joint Requirements Office in providing CBRN equipment and training to partners in the region.

Thailand: The United States and Thailand's long relationship began with a Treaty of Amity and Commerce in 1833, now 183 years old; that relationship expanded into a defense treaty in 1954, and the U.S. continues to value our alliance and friendship. Unfortunately, the Thai military's ongoing control of the civilian government since May 2014 undermines this important relationship. The U.S. encourages a return to democracy that will fully restore our bond; until then, military engagements and exercises will continue in reduced form. USPACOM will continue demonstrating commitment to our oldest ally while also reinforcing democratic values and ideals. Moving forward, it would be my hope that we use MSI to more fully support Thailand's maritime security and maritime domain awareness capability as an important member of the region. Moving forward, it would be my hope that we use MSI to more fully support Thailand's maritime security and maritime domain awareness capability as an important member of the region.

PARTNERS

Singapore: Singapore is our most important partner in Southeast Asia. It has been a major security cooperation partner for over a decade and provides invaluable access for U.S. Forces. The rotational deployment of Littoral Combat Ships to Changi Naval Base has been productive, and P–8s now operate out of Paya Lebar Air Base on a regular basis. USPACOM conducts dozens of military exercises each year with Singapore's Armed Forces, Singaporean military officers regularly attend United States professional military education, and Singaporean military personnel participate in advanced military training that is conducted throughout the United States. Singapore hosts the annual Shangri-La Dialogue, a Secretary of Defense-level event that deepens regional ties and tables important issues for discussion. The combination of forward deployed forces and deep training relationships contribute to readiness, build deeper ties, and allow the U.S. to promote maritime security and stability with regional partners.

India: The new found momentum in our bilateral relationship with India represents USPACOM's most promising strategic opportunity. In January 2015, President Obama and Prime Minister Modi signed a Joint Strategic Vision of the Asia-Pacific and Indian Ocean Region. This landmark document presents shared views and interests for the region. The United States / India military-to-military relationship deepens as forces increasingly train and operate together. USPACOM intends to add momentum to an important relationship. Through this end, I have made improving the military-to-military with India a formal Line of Effort at USPACOM. In June 2015, during Secretary of Defense Carter's visit to India, the United States and India renewed the ten-year Defense Framework Agreement. In 2015, United States and India militaries participated together in three major exercises and 62 other military exchanges covering scenarios ranging from high-end warfare to humanitarian assistance and disaster response. The US–India Defense Technology and Trade Initiative (DTTI) further expands opportunities. Defense sales are at an all-time high and U.S.-sourced airframes, such as P–8s, C–130Js, C–17s, AH–64s and CH–47s, increase interoperability. USPACOM will advance the partnership with India by expanding the scope of military-to-military interactions.

New Zealand: Despite differences over nuclear policy, our military-to-military relationship with New Zealand, underpinned by the Wellington and Washington Declarations, is on solid footing. The New Zealand military has fought, flown, and sailed with United States forces since the beginning of Operation Enduring Freedom. New Zealand continues to be a respected voice in international politics and a recognized leader in the South Pacific that shares common security concerns with

the U.S., including terrorism, transnational crime, and maritime security. Military-to-military relations and defense engagements with New Zealand remain strong.

Vietnam: Vietnam's growing economy and their concerns over Chinese coercion presents a strategic opportunity for the United States to add another regional partner. USPACOM is moving forward with Vietnam to improve Vietnam's capacity and capability in maritime security, disaster response. We are also exploring ways to use MSI to support Vietnam's maritime security modernization efforts, including in the area of search and rescue. In addition, Vietnam has agreed to allow U.S. prepositioning humanitarian stocks and supplies for disaster preparedness purposes.

Indonesia: Indonesia is an important security partner in Southeast Asia. President Joko Widodo's initiative to transform Indonesia into a global maritime "Fulcrum" demonstrates Indonesia's desire to play a larger role in international diplomatic, economic, and security issues. Again, USPACOM is developing ways to partner with Indonesian security forces through MSI and other U.S. security cooperation programs to improve Indonesia's maritime security capacity and encouraging a collaborative regional maritime security architecture. Indonesia is not a claimant to territory in South China Sea maritime dispute, but it is reinforcing security on and around its Natuna Islands. Indonesia will maintain relationships with other influential nations such as Russia and China, but security cooperation with the United States is a top priority for Jakarta. As a tangible sign of this, the United States and Indonesia signed a ministerial-level Joint Statement on Comprehensive Defense Cooperation in October.

Malaysia: Malaysia is another important contributor to regional peace and security. Through the Comprehensive Partnership with Malaysia, the United States and Malaysia promote regional stability. Malaysia's regional leadership role, technologically advanced industry, stable economy, and capable military make it an important partner in securing peace and prosperity in Southeast Asia. USPACOM continues to assist Malaysia in building an amphibious force to address non-traditional threats in and around Malaysia's territorial waters. Malaysia seeks United States support in developing a more capable Coast Guard through the Malaysia Maritime Enforcement Agency. These capabilities and engagements demonstrate Malaysia's capacity and resolve to ensure regional and domestic security, and Malaysia develops opportunities for multilateral security cooperation through Cooperation Afloat Readiness and Training (CARAT) exercises. Like other section 1263-designated countries, we are exploring ways that MSI can support Malaysia's maritime security requirements in each of these areas.

Sri Lanka: President Sirisena, elected in January, is serious about addressing Sri Lanka's human rights issues. We have an opportunity to expand United States interests with Sri Lanka—Asia's oldest democracy—and will proceed deliberately as progress is made. Given Sri Lanka's strategic location, it is in America's interest to increase military collaboration and cooperation. As conditions permit, USPACOM will expand military leadership discussions, increase naval engagement, and focus on defense institution building in areas such as demobilizing and military professionalism.

OTHERS

In addition to Indo-Asia-Pacific allies and partners, USPACOM has many other unique relationships throughout the region with countries, jurisdictions, and international governmental organizations. These relationships are important parts of our overall strategy.

Taiwan: Free and fair democratic elections in January on the island of Taiwan reflect shared values with the United States The United States maintains its unofficial relations with Taiwan through the American Institute in Taiwan and we continue supporting Taiwan's security. USPACOM will continue to fulfill United States commitments under the Taiwan Relations Act; continued arms sales to Taiwan are an important part of that policy and help ensure the preservation of democratic government institutions.

The United Kingdom (UK), Canada, and France: Staunch NATO allies, the UK, Canada, and France are also Indo-Asia-Pacific nations, each with significant interests in the Pacific and Indian Oceans, including territories, allies, partners, and trade. Each participates in PACFLT's RIMPAC and other major exercises, and deploy ships, submarines, and other forces to the region for operational, partner capacity, law enforcement and disaster response missions. Canada has a General Officer serving as a Deputy Director for Operations at USPACOM; the UK will assign a similar grade officer to serve as Director of USPACOM's Theater Security Cooperation effort. Each nations' leadership expressed renewed commitment to the region, and USPACOM welcomes and supports their efforts.

The Association of Southeast Asian Nations (ASEAN): While not a military alliance, ASEAN is among the most important multilateral forums in the region. The ten ASEAN member states, under the chairmanship of Malaysia last year and Laos this year, seek to improve multilateral security engagements and advance stability in the Indo-Asia-Pacific. ASEAN-centered political-security fora such as the ASEAN Defense Minister's Meeting Plus (ADMM–Plus) and ASEAN Regional Forum (ARF) have encouraged ASEAN members and China to conclude a meaningful, substantive Code of Conduct for the South China Sea. USPACOM investment in the ADMM–Plus, ARF and other U.S. ASEAN defense engagements improve multilateral defense cooperation and promote regional norms. Facilitating capacity building through incrementally increasing the complexity of ASEAN's recurring multilateral exercises is a priority. In 2016, USPACOM will participate in the second series of ADMM–Plus' three major exercises.

China: The United States-China relationship remains complex. While Chinese actions and provocations create tension in the region, there are also opportunities for cooperation. The United States approach to China encourages a dialogue between the armed forces of both countries to expand practical cooperation where national interests converge and to constructively manage differences through sustained and substantive consultations. USPACOM's engagements with China, governed by section 1201 of the fiscal year 2000 NDAA, improve transparency and reduce risk of unintended incidents, enhancing regional stability.

USPACOM executed over 50 bilateral and numerous multilateral engagements last year with China. USPACOM supports our national effort to encourage China to support the existing security architecture; however, China's base-building and militarization in the South China Sea, its lack of transparency regarding military modernization efforts, and continued malicious cyber activity raise regional tension and greatly hinder United States-China cooperation. Instead of jointly working toward reinforcing international rules and law to promote regional peace and stability, United States-China engagements are often focused on reducing friction and avoiding miscalculation.

USPACOM hosted a United States-China Military Maritime Consultative Agreement plenary and working group focused on operational safety in November 2015. USPACOM also provided significant support to the development of the Rules of Behavior memorandum of understanding on safety in the air and maritime domain. Ongoing dialogues led to improved communications and safer encounters at sea and in the air.

There are areas where United States and Chinese militaries cooperate in areas of common interest, such as counter piracy, military medicine, and disaster response. The most successful engagements focused on military medical cooperation and shared health concerns. For example, in January 2015, the PLA hosted the USPACOM Surgeon and component surgeons in Beijing, Xi'an and Shanghai focused on Disaster Response, Pandemic and Emerging Infectious Diseases, and Soldier Care. In September, the USPACOM Surgeon sponsored the third acupuncture subject matter expert exchange between United States and PLA acupuncturists in Beijing, leading to collaborative research on acupuncture treatment for post-traumatic stress disorder. USPACOM encourages China's participation in international efforts to address shared challenges in a manner consistent with international law and standards.

Bilateral and Multilateral Approaches: USPACOM is directly connected to regional leaders. I am in frequent communication with my regional counterparts and appreciate the ability to reach out at any time to share perspectives. USPACOM maintains a close link with allies and partners through staff exchange and liaison officers, in addition to a series of formal bilateral mechanisms. In Australia, key engagements stem from the ANZUS treaty obligations, guided by USPACOM's principle bilateral event with Australia, the Military Representatives Meeting. Similarly, USPACOM's military to military relationship with Japan is guided by the annual Japan Senior Leader Seminar. Military Committee and Security Consultative Meetings are the preeminent bilateral mechanisms that guide the ROK and U.S. alliance. Each year, USPACOM co-hosts the Mutual Defense Board and Security Engagement Board with the Armed Forces of the Philippines to deal with 21st-century challenges. USPACOM conducts annual Senior Staff Talks with Thailand to address security concerns and reinforce U.S. commitment to democratic principles. Bilateral mechanisms also exist with non-alliance partners throughout the region, including India, Indonesia, and Vietnam.

The future lies in multilateral security mechanisms. USPACOM is evolving key bilateral relationships into multilateral ones that will more effectively address shared security concerns. For example, US–Japan-ROK trilateral coordination in response to North Korean provocative behavior is improving. The ROK and Japan

each recognize that provocative actions by North Korea will not be isolated to the peninsula and greater coordination and cooperation are required. The December 2014 signing of the US–Japan-ROK Trilateral Information Sharing Arrangement is an important step toward greater information sharing. This arrangement was first exercised in early January following the nuclear test in North Korea.

To encourage multilateral cooperation, USPACOM hosts the Chief of Defense Conference (CHODs) annually. The CHODs conference location rotates between Hawaii and a regional partner. In 2015, 31 countries attended the CHODs conference in Hawaii. USPACOM also participates in Australia-Japan-United States trilateral defense dialogues, including the Security and Defense Cooperation Forum (SDCF). The trilateral relationship between the United States, Japan, and India is growing, as evidenced by the first trilateral ministerial meeting held last year. The United States, Japan, and India share democratic values, interests in protecting sea lanes of commerce, and promoting adherence to international laws and norms. Next, USPACOM aims to build a powerful quadrilateral partnership framework of the most powerful democracies in the Indo-Asia-Pacific. India, Japan, Australia, and the United States working together will be a force for the maintenance of the regional rules-based order, counterbalancing and deterring coercion or unrestrained national ambitions.

ACTIVITIES

Security Cooperation and Capacity Building: USPACOM's Security Cooperation approach focuses on building partner readiness, reducing partner capability gaps, and building partner capacity. One of the more powerful engagement resource tools is Foreign Military Financing (FMF). Favorable consideration for continued funding of FMF enables USPACOM to meet regional challenges to include border security issues, disaster response, counterterrorism, and in particular, maritime security.

As I mentioned, USPACOM will leverage the fiscal year 2016 NDAA section 1263 "South China Sea Initiative" authority to execute the Secretary's Southeast Asia Maritime Security Initiative to build maritime security and maritime domain awareness of partners in the South China Sea region, through assistance to, and training of, partner nation maritime security forces. USPACOM will continue to rely on FMF as a source of providing major end items to eligible countries. MSI support notified pursuant to the new section 1263 authority should be viewed as complementary and additive in nature to these FMF plans. Under MSI, PACOM plans to provide niche capabilities, more multi-mission type of equipment, and connective tissue that will help partners better deploy and employ these maritime security capabilities, both domestically to protect their sovereign territory, but also as a means of fostering greater regional interoperability.

Maritime Domain Awareness: Southeast Asian partners have expressed strong enthusiasm and support for United States security cooperation efforts in the area of maritime domain awareness (MDA). USPACOM will leverage MSI and the new section 1263 authority to develop multilateral approaches to information sharing toward a regional common operating picture. This year, the Philippines, Australia and the United States are co-hosting a workshop to discuss regional best practices. This civilian-military workshop will facilitate whole-of-government discussions on maritime challenges that support creation of a regional maritime domain awareness network to share information across Southeast Asian partners—another multilateral approach to addressing security challenges in the region.

Global Peace Operations Initiative (GPOI): Indo-Asia-Pacific countries provide over 40% of the world's uniformed peacekeepers to United Nations (UN) peacekeeping operations worldwide; half of those countries that provide UN peacekeepers are GPOI program partners. GPOI builds and maintains the capability, capacity, and effectiveness of partners to deploy professional forces to meet the UN's needs in peace and security operations. Partners are meeting program goals achieving, or making progress towards achieving, self-sustaining, indigenous training capability. In 2016, USPACOM and Mongolia will cohost a multinational peacekeeping exercise called KHAAN QUEST, training personnel from 37 nations for deployment to UN peacekeeping missions. USPACOM expects 28 regional GPOI partners in KHAAN QUEST. USPACOM will continue improving partner military peacekeeping skills and operational readiness and provide limited training facility refurbishment. Indonesia's plan to provide 4,000 deployable Peacekeeping Forces by 2020 is another opportunity for USPACOM to engage with Indonesian military forces.

Pacific Pathways: As an innovative way to overcome the Indo-Asia-Pacific's vast time-distance challenges, United States Army Pacific (USARPAC) created Pacific Pathways which sequentially deploys small units to multiple countries for

training. Their forward presence also enables rapid response to humanitarian emergencies or regional crises. This cost-effective program ensures that our regionally aligned Army elements know how to deploy and fight in the Indo-Asia-Pacific alongside our allies and partners. I support and encourage this kind of innovative thinking, and it pays major dividends in both relationships and readiness.

Joint Exercise Program: USPACOM's Joint Exercise Program intentionally synchronizes frequent, relevant, and meaningful engagements across the Indo-Asia-Pacific region. This important program, funded through the Combatant Commander Exercise Engagement Training Transformation (CE2T2), improves readiness of forward deployed assigned forces. Exercises and training strengthen USPACOM's military preeminence and enhance relationships. USPACOM appreciates Congress' support for continued progress.

Pacific Partnership: United States Pacific Fleet's (PACFLT) Pacific Partnership is an annual disaster response preparedness mission to Southeast Asia and Oceania regions. Pacific Partnership includes participation from U.S. allies and partners to improve cooperation and understanding between partner and host nations ahead of major natural disasters that require a multinational response. Last year, USNS *Mercy* conducted a four-month deployment to Fiji, Papua New Guinea, the Philippines, and Vietnam and provided healthcare and surgical procedures, community health engagements, and engineering projects including nearly 700 surgeries, 3,800 dental exams, and 10 renovation and new construction projects.

Joint Enabling Capabilities Command: One organization that supports USPACOM's ability to respond rapidly and effectively to events in theater is TRANSCOM's Joint Enabling Capabilities Command (JECC). The JECC is critical to USPACOM's ability to facilitate rapid establishment of joint force headquarters, fulfill Global Response Force (GRF) execution, and bridge joint operational requirements by providing mission-tailored, ready joint capability packages.

Counter-Narcotics: The drug trade continues to grow and threaten stability across the region. It has become a massive business, with sophisticated global networks. USPACOM combats drug trafficking in the region through Joint Interagency Task Force-West (JIATF–W). Building partner capacity to counter illicit trafficking of narcotics continues in areas such as the tri-border area of the Philippines, Malaysia and Indonesia, the coastal areas of Vietnam and Cambodia, and the border regions of Bangladesh. USPACOM is also fighting illicit trafficking across the Northern Thai border in the historic "Golden Triangle" area and beginning new partnerships with France to combat trafficking in and through French Polynesia and the Southern Pacific. Counter-narcotics programs support law enforcement and security forces, enhance relationships with partner nation law enforcement agencies, and impede the flow of narcotics and other illicit commodities.

JIATF–W engagements with China are an essential part of the counter narcotics effort. Maritime container shipments of China-sourced chemicals are often diverted for methamphetamine and heroin/opioid production in Mexico—a direct threat to the United States Homeland. As much as 90 percent of the precursor chemicals used in methamphetamine production originates in China. Further, the annual volume of methamphetamine seizures going into the U.S. exceeded cocaine seizures on the southwest border of the U.S. in recent years. Through a partnership with the Internal Revenue Service, JIATF–W leveraged Department of Defense counternarcotic authorities to open an additional avenue of cooperation with Chinese officials by providing anti-money laundering training to counterdrug efforts. These efforts show promise in improving communication, cooperation, and information sharing on significant criminal enterprises operating in the United States and China.

The Daniel K. Inouye Asia-Pacific Center for Security Studies (DKI APCSS): DKI APCSS serves as a truly unique venue to empower regional security practitioners to more effectively and collaboratively contribute to regional security and stability. *This center is one of our asymmetric capabilities. No other country has anything quite like it.* Through its academic exchanges, workshops, and sustained alumni engagement activities, DKI APCSS helps build partner nation capacities and affirm U.S. interests in the region. DKI APCSS provides added support to the USPACOM mission in several uniquely focused areas: as one of the few organizations authorized to conduct carefully measured engagement with Burma defense officials; as the primary tool of security cooperation engagement with the Pacific Island region; and as USPACOM's lead in implementing the U.S. National Action Plan mandate to increase inclusion of women in the security sector under the Women, Peace, and Security program. Recent successes include development and implementation of a successful country-wide security plan for 2015 elections in Burma; building the capacity of government officials in preparation for the Lao 2016 chairmanship of ASEAN; enhancing the cybercrime investigation capability of the Bangladesh Police; developing rules of engagement for the Timor Leste police during

peacetime; building a data system for collection of counterterrorism information in Vietnam; and improving coordination among Philippine national agencies, local government units, NGOs, and other stakeholders in disaster response.

Center for Excellence-Disaster Management (CFE–DM): The CFE–DM is USPACOM's executive agent for collecting lessons learned and developing and sharing best practices to prepare U.S. and partner governments for disaster response. CFE–DM recently completed a Joint After-Action Review of USPACOM's disaster response to the April 2015 Nepal Earthquake (Operation SAHAYOGI HAAT). The success of the response is a testament to Nepali preparation and disaster risk reduction efforts that were enhanced by our ongoing training assistance. The civilian national disaster management structures functioned, and the initial international response coalesced around the Nepal Army's Multinational Military Coordination Center (MNMCC). Five years of USPACOM Theater Security Cooperation initiatives with regional partners, organizations, and international agencies facilitated this collaborative foreign disaster response. CFE–DM supports USPACOM's efforts to increase resilience and more effective disaster response capabilities.

CRITICAL CAPABILITIES

The most technical, high-end military challenges in the region are growing. While many improvements to posture, forward deployed forces, and our relationships help address these challenges, USPACOM requires the best, high-end warfighting capabilities available now and in the future. As Secretary Carter recently said about deterring our most advanced competitors, "We must have, and be seen to have, the ability to impose unacceptable costs on an advanced aggressor that will either dissuade them from taking provocative action or make them deeply regret it if they do." There are a number of mission sets and enablers that requires continuous focus and attention. These include undersea warfare, munitions, ISR, cyber, space, and Integrated Air and Missile Defense (IAMD) systems. We must preserve our asymmetric advantages in undersea- and anti-submarine warfare, and we must regain and retain fading abilities to counter anti-access / area-denial (A2/AD) strategies.

Today, China is "out-sticking" United States air and maritime forces in the Indo-Asia-Pacific region in terms of ranges of anti-ship weapons. I need increased lethality, specifically ships and aircraft equipped with faster, more lethal, and more survivable weapons systems. We must have longer range offensive weapons on every platform. Finally, we must have a networked force that provides greater options for action or response.

We face a significant A2/AD challenge in this region. Pacing the threat is not an option in my playbook. We must outpace the competition which requires continued investment in development and deployment of the latest technology to USPACOM. Examples include Navy Integrated Fires and the AEGIS Flight III destroyer and its Air and Missile Defense Radar (AMDR)—essential tools in the complex A2/AD battlespace in which our young men and women operate today. The arrival of the USS *Barry,* USS *Benfold* and USS *Chancellorsville* in the Western Pacific represent forward deploying cutting edge technology where it is needed.

Undersea Warfare: Of the world's 300 foreign submarines, roughly 200 are in the Indo-Asia-Pacific region; of which 150 belong to China, North Korea, and Russia. China is improving the lethality and survivability of its attack submarines and building quieter high-end, diesel- and nuclear-powered submarines. China has four operational *Jin*-class ballistic missile submarines (SSBNs) and at least one more may enter service by the end of this decade. When armed, a *Jin*-class SSBN will give China an important strategic capability that must be countered. Russia is a Pacific threat, modernizing its existing fleet of *Oscar*-class multi-purpose attack nuclear submarines (SSGNs) and producing their next generation *Yasen*-class SSGNs. Russia has also homeported their newest *Dolgorukiy*-class SSBN in the Pacific, significantly enhancing their strategic deterrence posture. USPACOM must maintain its asymmetric advantage in undersea warfare capability including our attack submarines, their munitions, and other anti-submarine warfare systems like the P–8 Poseidon and ship-borne systems.

Critical Munitions: Critical munitions shortfalls are a top priority and concern. USPACOM advocates for continued investment, additional procurement, and improved munitions technologies to better deter and defeat aggression. Munitions are a major component of combat readiness. USPACOM forces need improvements in munitions technologies, production, and pre-positioning, but fiscal pressure places this at risk.

USPACOM weapon improvement priorities include long-range and stand-off strike weapons, longer-range anti-ship weapons (ship and aircraft-based), advanced air-to-air munitions, theater ballistic/cruise missile defense, torpedoes, naval mines, and

a cluster munitions replacement. Our *subsonic* ship-to-ship munition, the Harpoon, is essentially the same missile we had in 1978, when I was a newly-commissioned Ensign. Nearly forty years later, competitors have developed *supersonic* ship-to-ship and land-based weapons that reach much farther, punch harder, and fly faster. USPACOM welcomes efforts to turn the tables back in our favor—quickly. In the air-to air realm, USPACOM welcomes advancements in munitions that will provide an advantage in a complex air-to-air environment. Additionally, modernization and improvement to U.S. torpedo and naval mine capabilities and inventories are required to maintain U.S. undersea advantage. Continued improvements in the capability and capacity of ballistic/cruise missile defense interceptors will further enhance Homeland defense capabilities and protect key regional nodes from aggressive action. In support of Korea, USPACOM supports efforts to acquire a replacement for aging cluster munitions.

Intelligence/Surveillance/Reconnaissance: The challenge of gathering credible ISR cannot be overstated, and it is a constantly evolving problem. The Indo-Asia-Pacific presents a dynamic security environment requiring flexible, reliable, survivable deep-look and persistent ISR to provide indications and warning and situational awareness across a vast geographic area. As previously noted, USPACOM faces a variety of challenges and potential flashpoints to include threats from North Korea, a resurgent Russia, an expanding China, terrorism, and territorial disputes. Several hundred thousand Americans live under a constant threat of attack by North Korea, with over a hundred thousand rockets able to range Seoul on little to no notice. These challenges require ISR to prevent strategic surprise and accurately assess the security environment and, if necessary, defeat potential adversaries. The Rebalance to the Asia-Pacific has increased USPACOM allocation of ISR resources. USPACOM will continue to require additional advanced ISR to avoid long-term risk.

Cyber and Space: The cyber domain, coupled with space, is the most likely "first salvo" in a future conflict. Increased cyber capacity and nefarious activity, especially by China, North Korea, and Russia underscore the growing requirement to evolve command, control, and operational authorities. I support a separate CYBERCOM functional combatant command that retains its "double-hatting" with the National Security Agency. I also believe that in order to fully leverage the cyber domain, USPACOM requires an enduring theater cyber capability able to provide cyber planning, integration, synchronization, and direction of cyber forces.

USPACOM relies on space based assets for satellite communications (SATCOM) and ISR across the range of military operations. The USPACOM region spans over half the globe and space based assets are high-demand, low-density resources. As the shared domain of space grows increasingly congested and contested, our adversaries are developing means to attack our space-enabled capabilities. USPACOM requires resilient SATCOM capability to support operations. China is pursuing a broad and robust array of counterspace capabilities, which includes direct-ascent anti-satellite missiles, co-orbital anti-satellite systems, computer network operations, ground-based satellite jammers and directed energy weapons.

Integrated Air and Missile Defense (IAMD): TPY–2 radars in Japan, the THAAD system on Guam, and the Sea-Based X-band Radar (SBX) based in Hawaii defend the U.S. Homeland and our allies. USPACOM's IAMD priority is maintaining a credible, sustainable ballistic missile defense by forward deploying the latest in ballistic missile defense technologies to the Pacific. For example, the U.S. Seventh Fleet is increasing its Ballistic Missile Defense (BMD) capability with the addition of the USS *Benfold,* which arrived in Japan last year, and USS *Barry* scheduled to arrive in early 2016. These ships received a midlife modernization, making them the most capable BMD ships in the world. The addition of these modernized ships enables the U.S. Seventh Fleet to better support the United States-Japan alliance with a credible ballistic missile defense capability. USPACOM continues to work with Japan, the Republic of Korea, and Australia to improve coordination and information sharing with the goal of creating a fully-integrated BMD architecture.

Innovation: Innovation is critical to addressing USPACOM's capability gaps and maintaining our military advantage. USPACOM partners with DOD-wide organizations, national laboratories, and industry to provide innovative solutions to fill capability requirements. In particular, USPACOM maintains a strong relationship with the OSD Strategic Capabilities Office (SCO), which is developing game-changing technologies for the Indo-Asia-Pacific. USPACOM strongly supports Deputy Secretary Work's Third Offset Strategy and the associated effort to strategically advance areas where the U.S. can maintain dominance. The ability to quickly and adaptively change joint operational concepts and innovatively employ current capabilities in a high-end fight is critical.

CONCLUSION

It has been over four years since the President announced the United States Rebalance to the Indo-Asia-Pacific. There is much more to the Rebalance than military activity and the success of this strategic concept depends as much on our economic and diplomatic efforts as it does on our military efforts. From the military perspective, I believe the Rebalance is working. This success is due in no small part to the support of this committee and the Congress. But we are not done, and we must not lose momentum. USPACOM appreciates your continued support. I ask this committee to support continued investment in future capabilities that meet the challenges in the Indo-Asia-Pacific. I appreciate your help in continuing to field the right numbers of existing capabilities. I ask for your support to our plans to adapt our regional force posture. Finally, I ask your continued support for our efforts to reinforce and enhance alliances and partnerships. Thank you for your enduring support to USPACOM and our men and women in uniform, and their families, who live and work in the vast Indo-Asia-Pacific.

Chairman MCCAIN. General Scaparrotti?

STATEMENT OF GENERAL CURTIS M. SCAPARROTTI, USA, COMMANDER, UNITED NATIONS COMMAND, COMBINED FORCES COMMAND, U.S. FORCES KOREA

General SCAPARROTTI. Chairman McCain, Ranking Member Reed, and distinguished members of the committee, I am honored to testify today as the commander of the United Nations Command [UNC], Combined Forces Command [CFC], and the United States Forces Korea [USFK].

Sir, I would like to add to Admiral Harris's comment that we wish Senator McCaskill a speedy recovery as well.

On behalf of the American soldiers, sailors, airmen, and marines, and our civilians, serving in the Republic of Korea, thank you for your support.

Admiral Harris, thank you for your vision and professional support of the entire PACOM team for USFK.

I have prepared brief opening remarks, and I ask that my written posture statement be entered into the record.

Chairman MCCAIN. Without objection.

General SCAPARROTTI. Since my last testimony, our United States-ROK alliance has continued to focus on advancing our combined capabilities. Some of these advanced capabilities include the establishment of the first United States-ROK combined division, the rotation of additional U.S. Forces to the peninsula, the execution of our annual combined training exercises, and steady progress on our $10.7 billion plan to relocate United States forces in Korea.

Furthermore, the Republic of Korea has improved its capabilities with the recent establishment of the Korean Air and Missile Defense System and center, and the Allied Korea Joint Command and Control System. The Republic of Korea has also invested in modern equipment with the purchase of the F–35 Joint Strike Fighter, Global Hawk, Patriot Advanced Capability 3 missile upgrades, as well as AH–64 Apache helicopters.

These alliance advances help counter the real and proximate North Korean threat. North Korea continues to conduct provocations and to resource its large conventional force. Of greater significance, North Korea continues to aggressively develop nuclear weapons and ballistic missiles in direct violation of the U.N. Security Council resolutions, as demonstrated with its fourth nuclear test and its fifth TD-2 launch in January and February.

In regards to this threat, my top concern remains the potential for a North Korean provocation to start a cycle of action and counteraction, which could quickly escalate, similar to what we experienced this past August.

While I am proud to report that our alliance stood shoulder-to-shoulder and de-escalated the situation, it could have spiraled out of control and demonstrates why we must be ready to fight tonight on the peninsula.

To maintain this level of readiness, we will continue to focus on sustaining, strengthening, and transforming the alliance with an emphasis on our combined readiness in four critical areas.

First, ISR [intelligence, surveillance, and reconnaissance] remains my top readiness challenge. CFC/USFK requires additional persistent, all-weather ISR capabilities, as well as dependable moving target indicator support, to maintain situational awareness and provide adequate decision space.

Second, it is critical for the alliance to establish a layered and interoperable ballistic missile defense. To advance this goal, we will soon begin bilateral consultations regarding the feasibility of deploying the THAAD system to the Republic of Korea, which would complement the Patriot system capabilities.

Third, we must maintain an adequate quantity of critical munitions to ensure alliance supremacy in the early days of any conflict on the peninsula. This requirement is further amplified by the approaching loss of cluster munitions due to the shelf-life expiration and the impending ban.

Fourth, we must focus on command and control, communications, computers, and intelligence, or what we call C4I. Both the United States and the Republic of Korea are investing in new tactical equipment that will comprise a reliable C4I architecture, but much more is required.

In closing, I would like to express how proud I am of the servicemembers, civilians, and their families serving in the Republic of Korea who never lose sight of the fact that we are on freedom's frontier. I also would like to recognize Ambassador Mark Lippert and Admiral Harry Harris and the United States and ROK senior leaders for their enduring commitment to our mission on the peninsula. Thank you, and I look forward to your questions.

[The prepared statement of General Scaparrotti follows:]

PREPARED STATEMENT BY GENERAL CURTIS M. SCAPARROTTI

1. INTRODUCTION

Mr. Chairman and distinguished members of the Committee, I am honored to testify as the Commander of the United Nations Command (UNC), the United States–Republic of Korea (United States-ROK) Combined Forces Command (CFC), and United States Forces Korea (USFK). Thank you for your continued support to our servicemembers, civilians, contractors, and their families, whose service each day on "Freedom's Frontier" advances vital U.S. interests, strengthens the Alliance between the United States and the Republic of Korea, and makes a critical contribution to the stability of Northeast Asia. In my third year as the Commander, I have witnessed the U.S.-ROK Alliance grow stronger, as the Alliance has improved its capabilities, planning, and cooperation to counter evolving threats from North Korea and to advance our four priorities:

- Sustain and Strengthen the Alliance.
- Maintain the Armistice. Be Ready to "Fight Tonight" to Deter and Defeat Aggression.

- Transform the Alliance.
- Sustain the Force and Enhance the UNC/CFC/USFK Team.

Through this past August's land mine attack, North Korea's fourth nuclear test in January, and the TD–2 missile launch earlier this month, the United States and Republic of Korea stood united and resolute against North Korea's provocative actions. Our strength and combined actions are the product of established ROK–U.S. bilateral processes, the Alliance's shared commitment to remain ready to "Fight Tonight," and the alignment of American and Korean values and goals.

While the Command focuses on these core priorities, we are also looking to the future. The Alliance took concrete steps over this past year to enhance our ability to respond to North Korea's evolving asymmetric capabilities, strengthen ROK forces to lead the combined defense of the Republic of South Korea, and relocate United States forces to two enduring hubs south of Seoul.

2. AMERICA'S FUTURE IN KOREA—SECURING VITAL INTERESTS AND ADVANCING REGIONAL STABILITY

The UNC/CFC/USFK mission is vital to the broader effort to expand security and prosperity in the Asia-Pacific region. As a sub-unified Command of U.S. Pacific Command (PACOM), USFK's core responsibility is to deter and defeat external aggression against the Republic of Korea, which enhances stability in the Asia-Pacific region and affirms our commitment to the United States-ROK Mutual Defense Treaty. We cooperate closely with PACOM in its mission to promote security cooperation, encourage peaceful development, respond to contingencies, deter aggression, and, when necessary, fight to win.

From my perspective, the level of U.S. engagement demonstrated by USFK in Korea and PACOM in the broader region is critical in this time of opportunity and challenge in Asia. Expanding ties among Asian countries and across the Pacific have helped facilitate an era of robust economic growth and military advances. While these advances promote global expansion and interdependent stability, international tensions have risen from the actions of several regional nations' military modernization and the use of national power. In this context of significant and rapid change, the Republic of Korea's neighbors are adjusting their strategies to shape the region's future.

China's continued pursuit of its military modernization program and land reclamation activities have prompted concerns among many nations in the region. Even as China's relations with North Korea remain strained, Beijing continues to support the North Korean regime, remains its largest trading partner, and seeks to prevent spillover of North Korean issues.

Japan's decisions to take a more active role in its defense and to advance global security are viewed by many nations around the world as a positive development. Yet, some in China, the Republic of Korea, and North Korea have been critical, as historical issues continue to influence views on Japan's international role. In this complex setting, USFK continues to look for opportunities to advance trilateral military cooperation among the United States, Japan, and the Republic of Korea.

Over the past year, Russia has continued to expand its military presence, economic investment, and diplomatic engagement to reassert its strategic interests in the region. Russia conducted combined military drills with China in August, conducted multiple air patrols by its bombers throughout the region and into the Korean Air Defense Identification Zone, and named 2015 as a "Year of Friendship" between Russia and North Korea.

Unfortunately, North Korea has chosen not to embrace this era of change and prosperity, and has been omitted from many of the opportunities in 21st century Asia. Kim Jong Un, North Korea's singular leader and the third generation of the Kim Family, exercises complete control over the state and military decision-making process focused on preserving the survival of his regime. He maintains an extensive internal security apparatus that addresses any challenges to his rule and he has openly replaced several top military leaders to solidify his authority. Kim also perceives that the regime's survival relies on the domestic and international recognition of North Korea as a global and nuclear power. This January's fourth nuclear test and February's launch of a TD–2 missile configured as a satellite launch vehicle—its fifth long-range missile launch since 2006—further demonstrate that North Korea will continue to defy UN Security Council resolutions and international norms in its attempts to seek the regime's desired recognition.

Similar to his father and grandfather, Kim has likewise demonstrated that violent provocations remain central to North Korea's strategy. For example, this past August, North Korea carried out a heinous landmine attack in the DMZ that grievously wounded two Korean Soldiers. Later in the month, tensions rapidly intensified

with the deployment of additional forces to the DMZ, psychological operations, and hostile rhetoric which required a strong, yet measured Alliance response. Even though our combined actions enabled national leaders from the two Koreas to resolve the situation diplomatically, it demonstrated North Korea remains a credible and dangerous threat on the Peninsula.

We continue to assess that North Korea recognizes it cannot reunify the Korean Peninsula by force with its large, but aging, conventional military. While it continues to train and man its conventional force, North Korea remains focused on improving its asymmetric capabilities: nuclear weapons, long-range ballistic missiles, and cyber programs. In addition to its fourth nuclear test, the regime conducted a multitude of multiple rocket launch system tests, as well as no-notice Scud and No Dong missile tests from a variety of locations throughout North Korea. Upgrades continued on the Taepodong Inter-Continental Ballistic Missile (ICBM) launch facility and development of a submarine-launched ballistic missile and vessel. Lastly, North Korea continued to improve its capabilities in the cyber domain which build on the regime's success of past cyberattacks.

Even as North Korea is investing heavily in asymmetric capabilities, its conventional military threats are still formidable. The KPA is the fourth-largest military in the world with several hundred ballistic missiles, the largest artillery force in the world with over 13,000 long-range and other artillery pieces, one of the largest chemical weapons stockpiles in the world, a biological weapons research program, and the world's largest special operations force. About three-quarters of its ground forces and half of its air and naval assets are within 60 miles of the Demilitarized Zone (DMZ). In the contested waters around the Northwest Islands and beyond the western end of the DMZ, North Korea has taken deliberate steps to strengthen its awareness and posture with additional navigation buoys, coastal observation posts, and naval patrols. These steps even include beginning construction of troop and weapon emplacements on Kal Do, an island less than three miles from Yeonpyeong Do, site of the 2010 North Korean shelling of the Republic of Korean military and civilian targets.

Due to these enduring and proximate threats, our Command must continue to deter North Korea's aggression as the risks and costs of a Korean conflict would be immense to the Republic of Korea, Northeast Asia, and the world. The region accounts for one-fifth of the world's economic output, 19% of global trade, four of the 13 largest economies, and four of the six largest militaries in the world. If deterrence fails, full-scale conflict in Korea would more closely parallel the high intensity combat of the Korean War than the recent wars in Iraq and Afghanistan. Furthermore, any conflict with North Korea would significantly increase the threat of the use of weapons of mass destruction.

3. THE COMMAND'S FOUR PRIORITIES—PROGRESS AND PROSPECTS

In the context of this unique strategic environment, the Command advances vital U.S. interests, strengthens the ROK–U.S. Alliance, and makes a critical contribution to security in the Asia-Pacific. This year, we have made progress on each of our four priorities—first, to sustain and strengthen the Alliance; second, to maintain the Armistice, while remaining ready to "Fight Tonight" to deter and defeat aggression; third, to transform the Alliance; and, finally, to sustain the force and enhance the UNC/CFC/USFK Team.

A. Sustain and Strengthen the Alliance. Three key innovations this year have led to substantive improvements in the ability of United States and ROK forces to operate together as integrated and capable allies.

1. A new ROK–United States Combined Division improves interoperability. For more than 60 years, the Soldiers of the U.S. 2nd Infantry Division (2ID) have stood shoulder-to-shoulder with our ROK allies. This year, that enduring commitment was taken one step further through the transformation of 2ID into a Combined ROK–United States Division. This new organization integrates over 40 ROK Army officers into the 2ID headquarters, fostering mutual trust, combined decision-making, and open communications. In addition, a ROK Army mechanized brigade will habitually train with the Combined Division's units to develop shared capabilities. If conflict comes to the Peninsula, this brigade will be under the operational control of the Combined Division to create a seamless capability.

2. Rotational forces improve readiness. In order to increase the effectiveness and readiness of U.S. Forces on the Peninsula, USFK rotates specifically selected unit capabilities instead of maintaining permanently stationed units with servicemembers on individual one-year tours. Fully manned, trained, and mission-ready rotational forces also provide the Alliance elevated capabilities over time by

introducing a greater number of the United States servicemembers to the unique aspects of contingency operations in Korea.

In the summer of 2015, the United States Army began rotating Brigade Combat Teams (BCTs) into the Republic of Korea for the first time, on nine-month tours as the 2nd Heavy Brigade Combat Team (HBCT) of the 1st Cavalry Division arrived from Fort Hood, Texas. Just two months after the unit arrived, the BCT was able to integrate with the ROK Army to conduct a combined and joint exercise. 2ID's Combat Aviation Brigade has also increased its capabilities through the rotation of Aerial Reconnaissance Squadrons and the Counter Fire Task Force expanded it combat power by adding a rotational Multiple Launch Rocket System (MLRS) battalion.

Rotation of fully-trained and resourced forces to the Korean Peninsula is not just an Army commitment. The United States Navy's Pacific Fleet ships and aircraft routinely exercise in the waters surrounding the Korean Peninsula as part of their regular rotation throughout the Pacific. Furthermore, the United States Air Force rotates both Active and Reserve Component fighter squadrons to Korea, while the United States Marines deploy air-ground teams to exercise and practice interoperability with the ROK Marine Corps.

3. New capabilities improve the Alliance's defense and deterrence. The ROK government has continued to invest approximately 2.5% of its Gross Domestic Product in its national defense—one of the highest rates among U.S. allies. During this past year, the Republic of Korea made progress in enhancing future interoperable-warfighting capabilities by procuring upgrades such as PAC–3 missiles for the Patriot Weapon System, multi-role tanker-transport aircraft, and the AEGIS command and control and weapons system. These follow previous investments in F–35 Joint Strike Fighters, Global Hawk high-altitude unmanned aerial vehicles, and other important assets. Once integrated into our Alliance force structure, these systems will further enhance our readiness and capability. Additionally, we announced this month that we will begin bilateral consultations regarding the viability of deploying the Terminal High-Altitude Area Defense (THAAD) system to the Republic of Korea to upgrade our combined missile defense posture.

B. Maintain the Armistice. Be Ready to "Fight Tonight" to Deter and Defeat Aggression. The Command's focus on readiness proved critical to answering North Korean provocations this past year. Our cooperation affirmed both countries' pledge to develop Alliance solutions to Alliance challenges.

1. The Command deters and defends against aggression to foster stability on the Peninsula. President Obama noted at his October meeting with President Park that, from the events of this August, "North Korea was reminded that any provocation or aggression will be met by a strong, united response by the Republic of Korea and the United States." When crisis came, we were prepared. A constant focus on readiness and open communication enabled the Alliance to act deliberately and prudently. The Alliance's actions deterred broader North Korean provocations and set the stage for a peaceful resolution of the crisis.

2. Three successful exercises enhance the Command's readiness. UNC/CFC/USFK enhanced its readiness through its three annual multinational, combined, and joint exercises—Key Resolve, Foal Eagle, and Ulchi Freedom Guardian. Key Resolve and Ulchi Freedom Guardian are annual, computer-simulated command post exercises that focus on crisis management and the defense of the Republic of Korea. Foal Eagle is an annual field training exercise to ensure operational and tactical readiness. All three exercises provide realistic scenarios that prepare our forces, to include additional participants from the UNC, to deter and defeat North Korean aggression and potential instability in the region. They are essential in improving ROK–U.S. crisis management, combat readiness, and interoperability.

We also aligned USFK's readiness program on the Korean Peninsula with PACOM's regional efforts. In August 2015, USFK and PACOM integrated for the first time the Korea-based Ulchi Freedom Guardian exercise and PACOM's Pacific Sentry command and control exercise. This coordination allowed the Alliance to test effective decision-making and mutual support with PACOM.

3. A revitalizing UNC strengthens the international contribution to Korea's defense. Last year, we increased our efforts to further strengthen the engagement of the United Nations Command's 17 Sending States in our day-to-day operations. When North Korean aggression raises tensions, the Sending States provide credible and multinational support for the defense of the Republic of Korea.

To revitalize the UNC, we will continue to engage all of the Sending States to leverage their many capabilities for Korea's defense. A senior Australian officer on our staff leads a sustained effort to enhance Sending State engagement in UNC's work. The representatives of the UNC Sending States participate in our exercises, train with us, meet monthly with the Command's senior leadership, and assign top-

quality officers to work in the Command. During the Ulchi Freedom Guardian 2015 exercise, the Command greatly appreciated the 89 participants from seven UNC Sending States (Australia, Great Britain, Canada, New Zealand, Colombia, Denmark, and France).

C. Transform the Alliance. In 2015, the Command and the Alliance continued to adapt to face both emerging and evolving challenges.

1. The MCM and SCM reaffirms ROK and U.S. commitment to defense cooperation. Following the October meeting between President Obama and President Park, in which our two countries recommitted to a comprehensive and global Alliance, our senior defense officials met in November at the 40th ROK–U.S. Military Committee Meeting (MCM) and the 47th ROK–U.S. Security Consultative Meeting (SCM). They approved and agreed to implement a new concept to detect, disrupt, destroy, and defend (the "4Ds") against North Korean missile threats; pledged to address global security challenges of mutual interest; strengthened cooperation in the space and cyberspace domains; reaffirmed a timely completion of the Yongsan Relocation Plan and Land Partnership Plan; identified critical military capabilities that the Republic of Korean military must develop to meet the conditions of OPCON transition; and endorsed the Conditions-based Operational Control (OPCON) Transition Plan, or COT–P.

2. The plan for conditions-based OPCON transition (COT–P) defines an effective way forward. COT–P creates a well-designed pathway to implement a stable transfer of wartime OPCON of combined forces from the United States to the ROK. This Plan provides a road map for the Republic of Korea to develop the capabilities that will allow it to assume wartime Operational Control (OPCON) when the security environment on the Korean Peninsula and in the region is conducive to a stable transition.

3. Effective military planning positions the Alliance to respond to a changing threat environment. USFK regularly reviews and updates operations plans to ensure our readiness to respond to regional threats and crises. The combined ROK–United States operations plan has and will continue to evolve to enhance readiness and strengthen the ROK–United States Alliance's ability to defend the Republic of Korea and maintain stability on the Korean Peninsula.

D. Sustain the Force & Enhance the UNC/CFC/USFK Team. Our Multinational-Combined-Joint Force continues to foster a positive Command Climate and focus on the welfare of our team.

1. The Command fosters a positive Command Climate through trust and team-building. The foundations of our organization and a positive Command Climate consist of effective communication, trust, and teamwork. Regular training on prevention of sexual harassment, sexual assault, and suicides continues to be a priority. The result is a strong record of servicemember discipline in the Republic of Korea. Over 99.4 percent of our servicemembers demonstrate their discipline and desire to be law-abiding, good neighbors in Korea.

2. Cohesive communities and new facilities promote Korea as an "Assignment of Choice." This attention to the welfare of our entire team has been an important driver in making Korea an "Assignment of Choice." Our realistic training against a real North Korean threat, cohesive community, the safety of our host country, and the brand-new facilities at Camp Humphreys welcome members of our military to serve on "Freedom's Frontier."

4. CRITICAL NEAR–TERM ALLIANCE TRANSITIONS

Northeast Asia is one of the world's most dynamic regions. As a result, the Command's success is not only contingent on our ability to meet our immediate requirements, but also on our flexibility to adapt in the strategic environment to new opportunities and challenges. While we focus our efforts on our four Command priorities, we are also making decisions and taking actions now that shape the future of our Command and Alliance. Longer-term success requires both steadfast advancement of the Command's priority to maintain readiness to "Fight Tonight" and the agility to transform in the future.

A. Enhance the Alliance's capabilities. As the North Korean threat evolves, its extensive asymmetric arsenal could be used at a time and location of its choosing. This creates indications and warning challenges for the Alliance which require the United States and the Republic of Korea to develop new capabilities to detect and defend against this threat.

1. Advance ISR, BMD, and critical munitions to sharpen our tools of deterrence. Together, both countries must constantly improve their intelligence, surveillance, and reconnaissance capacity; develop a robust, tiered ballistic missile defense; field appropriate command and control assets; acquire necessary inventories of crit-

ical munitions; and enhance the tools to prevent, deter, and respond to cyber-attacks.

2. The Tailored deterrence strategy underscores the U.S. commitment to the Peninsula. We have developed and refined a Tailored Deterrence Strategy, which serves as a strategic framework for tailoring deterrence against North Korean nuclear and ballistic missile threat scenarios. By providing a full range of ready military capabilities, including the U.S. nuclear umbrella, conventional strike, and missile defense capabilities, this strategy supports deterrence and represents the U.S. commitment to provide and strengthen extended deterrence.

3. The Combined Counter-Provocation Plan manages the risks of miscalculation. We also have confidence in our Combined Counter-Provocation Plan. This plan improves our ability to respond to North Korean provocations as an Alliance, while managing the risks of miscalculation and escalation. The events of this August underscore how strong, yet measured responses set the conditions for diplomatic efforts to work.

B. Relocate the United States force in Korea. The Command made progress towards relocating the majority of United States forces in Korea to two enduring hubs south of Seoul—a Central Hub around the cities of Osan and Pyeongtaek, and a Southern Hub around the city of Daegu. The $10.7 billion program is the largest single construction program in the Department of Defense and is well on its way to realizing its goal of modernizing the warfighting Command in Korea, improving the Command's effectiveness in deterring North Korea, and defending the Republic of Korea.

1. Construction peaks as workers build facilities to triple the size of Camp Humphreys. At the end of 2015, approximately 65% of the program was completed. Currently, at the peak of production, workers are constructing 655 new buildings, and remodeling or demolishing 340 existing buildings to accommodate the increase in population from approximately 12,000 to more than 36,000 servicemembers, families, civilians, and other members of our community. The majority of new facility construction at Humphreys will be completed in 2016, and the majority of unit relocations will occur through 2018. During these transitions, we are committed to making relocation decisions with the effective defense of the Republic of Korea as our most important priority.

2. United States Naval Forces Korea moves its headquarters to Busan, collocated with the ROK Navy. The project at Camp Humphreys is not the Command's only move. This year, United States Naval Forces in Korea relocated the majority of headquarters staff from Yongsan Garrison in Seoul to the ROK Navy base in Busan, to enable the two navy staffs to work closer on a daily basis. This is the first United States headquarters located on a ROK base.

5. USFK'S CRITICAL NEEDS

My top concern remains that we could have very little warning of a North Korean asymmetric provocation, which could start a cycle of action and counter-action, leading to unintended escalation. To remain effective as the threat evolves, we seek four critical capabilities:

First, *Intelligence, Surveillance, and Reconnaissance,* or ISR. ISR remains my top readiness challenge and resourcing priority as CFC/USFK requires increased, multi-discipline, persistent ISR capabilities to maintain situational awareness and provide adequate decision space for USFK, PACOM, and National senior leaders. Therefore, among various spectrum, deep look, and full-motion video (FMV) capabilities, I also request dependable Moving Target Indicator (MTI) support combined with an airborne command and control and battle management capability. The ability to correlate MTI with other airborne sensor data in near-real-time, with a robust onboard communications ability, contributes to a deeper understanding of the North Korean threat and intent.

Second, *Command, Control, Communications, Computers, and Intelligence,* or C4I. Both the United States and the Republic of Korea are investing in new tactical equipment that will comprise a reliable C4I architecture. We must maintain this momentum in improving C4I capabilities and interoperability, so we can communicate from tactical to strategic levels and between units in the field.

Third, *Ballistic Missile Defense,* or BMD. North Korea's missile program continues to develop, so it is critical for the Alliance to continue to build a layered and interoperable BMD capability. The U.S. PATRIOT system provides important defensive capabilities, and I have previously recommended to both governments that they consider a high-altitude missile defense capability. Meanwhile, the Republic of Korea is moving forward in the development of its Korea Air and Missile Defense (KAMD) and "Kill Chain." We have also made progress in advancing the interoperability of

Alliance BMD capabilities, but there remains work to do in this area, particularly to further refine interoperability between systems.

Fourth, *Critical Munitions.* The Command has identified specific munitions that it must have on hand in the early days of any conflict on the Peninsula. In this phase, the Alliance relies on the United States and ROK Air Forces air superiority to provide time for ready forces to flow into the Republic of Korea. In order to ensure this supremacy through immediate Alliance capability and interoperability, we must have sufficient critical munitions on hand. Therefore, we will continue to work closely with the Republic of Korea to ensure it procures the appropriate types and numbers of critical munitions for the early phases of hostilities. Of note, the potential ban on cluster munitions could have a significant impact on our ability to defend the Republic of Korea.

With these capabilities, our Alliance will greatly improve its posture in Korea. If we continue to act together, with the consistent support we have experienced in both Washington and Seoul, I believe the Command and the Alliance will strengthen and ensure our capability to deter North Korea and defend the Republic of Korea and United States interests.

6. CONCLUSION

Over the past two-and-a-half years, I have seen steady progress in the United States-ROK Alliance. Last year, we were tested, and we found ourselves ready. Through annual exercises that rehearse United States-ROK cooperation, the commitment to readiness of United States and ROK armed forces, and our peoples' shared values and goals, UNC/CFC/USFK and the ROK–United States Alliance have successfully advanced our priorities and realization of our combined vision.

We are deeply thankful for the support of our Korean partners and the UNC Sending States. We appreciate and value the continued support of Congress and the American people, as it is your support that allows us to undertake this critical mission.

It is my honor to serve with the American Soldiers, Sailors, Airmen, and Marines and our government civilians who serve in the Republic of Korea. Their presence and actions ensure freedom and the success of our objectives. Finally, we would like to recognize the leadership and support of senior United States and ROK civilian and military leaders, Ambassador Mark Lippert, and Admiral Harry Harris, as we support vital United States interests, strengthen the Alliance between the United States and the Republic of Korea, and make a critical contribution to security and prosperity in the Asia-Pacific.

Thank you, and I look forward to our discussion.

Chairman MCCAIN. Thank you.

I thank the witnesses for the kind words about Senator McCaskill. You reflect the views of all of us in wishing her well and a speedy recovery.

General Scaparrotti, you have the benefit of now 4 years of service as commander of forces in Korea. Have you ever seen tensions this high?

General SCAPARROTTI. No, sir, I have not, particularly in August. I think the tensions then with North Korea to "semi-war" status was the highest tension that we have seen, probably since 1994.

Chairman MCCAIN. In your testimony, you said the situation "could spiral out of control."

General SCAPARROTTI. Yes, sir. My concern is that, in a provocation, much like we had in August, both sides at a very high alert status, there could be a miscalculation. Then with the response, it would be hard to control that situation.

Chairman MCCAIN. You do support THAAD deployment?

General SCAPARROTTI. I do, sir.

Chairman MCCAIN. Admiral Harris, do you think it should be seriously considered, an option of a second carrier based in Japan?

Admiral HARRIS. Senator, I believe that, as a COCOM [Combatant Command], I want as much capability as close to the fight as I can. I think with regard to the second carrier strike group in

Japan, there are some problems with that, with the political piece with Japan, the costs, and all that. I will defer to the Navy to sort that out.

But, again, as a COCOM, I would welcome as much forces forward as possible.

Chairman MCCAIN. You have been in your job for how long now?

Admiral HARRIS. Just a little over 7 months. I took over last May.

Chairman MCCAIN. You have had extensive experience with the Chinese issue, with the issue of China?

Admiral HARRIS. Yes, sir, I have. Before this job, I was the Pacific Fleet Commander.

Chairman MCCAIN. Has any of this escalation, the latest, this HQ-9 surface-to-air missile system, surprised you?

Admiral HARRIS. No, sir. It does not surprise me. In my opinion, China is clearly militarizing the South China Sea, and you have to believe in the flat earth to think otherwise.

Chairman MCCAIN. One of the responses is to regularly sail into and fly over international waters?

Admiral HARRIS. Yes, sir. As I testified last September——

Chairman MCCAIN. Not as a one-off, but as just a regular, routine use of international airspace and waters?

Admiral HARRIS. Yes, sir. I agree with you.

Chairman MCCAIN. The situation vis-a-vis China continues to escalate, in your view?

Admiral HARRIS. Yes, sir. It does. I think China's SSM, surface-to-surface missiles, surface-to-air missiles, on Woody Island; its new radars on Cuarteron Reef over here; the 10,000-foot runway on Subi Reef over here and on Fire Cross Reef and other places; these are actions that are changing, in my opinion, the operational landscape in the South China Sea.

Chairman MCCAIN. The weapons they have developed could pose a direct threat to our carrier capabilities?

Admiral HARRIS. Yes, Senator. They could. The DF–21, which they have developed, and the DF–26, which they are developing, could pose a threat to our carriers. I think, though, that our carriers are resilient, and we have the capability to do what has to be done, if it comes to that.

Chairman MCCAIN. I note you mentioned in your remarks that the United States-Philippines alliance is important. Do you think it is important for us to lift restrictions on the sale of weapons to Vietnam?

Admiral HARRIS. Yes, Senator. I believe that we should improve our relationship with Vietnam. I think it is a great strategic opportunity for us, and I think the Vietnamese people would welcome an opportunity to work closer with us, as their security partner of choice.

Chairman MCCAIN. That also means port visits?

Admiral HARRIS. Yes, sir. We do port visits in Vietnam. I advocate for more, and I believe that we will be able to do more this year.

Chairman MCCAIN. If you were asked for your top two or three priorities of what we should do, in light of this compelling informa-

tion concerning the militarization by China, what would you recommend?

Admiral HARRIS. Sir, I believe that we should maintain our credible combat power. We should maintain a network of like-minded allies and partners. We should continue to exercise our rights on the high seas and in the airspace above it. We should encourage our friends, partners, and allies to do the same.

Chairman MCCAIN. Thank you.

Senator Reed?

Senator REED. Thank you very much, Mr. Chairman.

Thank you, gentlemen, for your testimony.

Admiral Harris, you pointed out that there is a growing alliance in the Pacific, including India, the Philippines, Vietnam, potentially. Some of this, ironically, might be a result of some of these contested actions of the Chinese. Is that accurate?

Admiral HARRIS. Yes, Senator. It is accurate. I believe that China's actions are provocative, increases tensions, and it causes the nations in the region to look to the United States as their security partner of choice and away from China.

Senator REED. Do you feel that we are fulfilling that role adequately, that we are engaging, and that we are cooperating and leading as we should in the Pacific?

Admiral HARRIS. I believe we are. Across the Indo-Asia-Pacific, from India through Southeast Asia and East Asia and Japan and Korea, we are improving our treaty alliances, our bilateral partnerships.

In turn, we are getting increased access throughout the region. Singapore comes to mind. The EDCA that I spoke about in the Philippines comes to mind.

This is an exciting time, in terms of access and agreements and relationships with countries throughout the Indo-Asia-Pacific region.

Senator REED. One of the consequences of their buildout into the islands is that they have very accurate surface-to-surface missiles, they have accurate radars, which would seem to put an even higher premium on underwater operations by U.S. submarines or autonomous vehicles. Is that your view? Are they becoming more important, submarines?

Admiral HARRIS. It is, though I would not say it is becoming more important, because submarine and undersea warfare has always been important to the joint force. I view the submarine as the original stealth platform, and the capabilities that we have is a true asymmetric advantage over any other adversary or potential adversary on the planet. That is our capability in the undersea realm.

Senator REED. Thank you.

Let me pose a question to both of you. China and North Korea is a very complicated relationship. The Chinese I think are nervous, not perhaps as much as the South Koreans and the United States, but, certainly, a little bit nervous. Yet they are the major funder in terms of the banking system, all of the infiltrating and exfiltrating monies in and out of North Korea, equipment, et cetera.

Why, in your view, have we not been able to convince the Chinese of the danger that they face, and that their efforts and our efforts together could be effective in preventing potential catastrophes? Admiral Harris?

Admiral HARRIS. Sir, I wish I knew the answer to that question. But I will say, adding on to what General Scaparrotti mentioned about THAAD, I find it preposterous that China would try to wedge itself between South Korea and the United States for a missile defense system designed to defend Americans and Koreans on the peninsula. If they were truly concerned, if they were truly interested, I believe China would and should intervene with North Korea and convince them to quit their cycle the provocations.

Senator REED. General Scaparrotti?

General SCAPARROTTI. Sir, first, I agree with Admiral Harris. I think that they state that they are concerned about stability on the border, and I believe that they place that value above the risk that they believe they are taking with Kim Jong-un. We, certainly, hope that they will reconsider that calculus, because they, certainly, could have a greater influence in North Korea, given that 80 percent of their trade and a good deal of North Korea's banking is with China.

Senator REED. Thank you.

Admiral Harris, you urged us all to repeal sequestration, which is, I think, the logical and obvious thing that must be done. Looking at your budget for this year, do you think you have adequate resources for the challenges, and they are significant, that you face?

Admiral HARRIS. Senator, thanks to the Congress, I am in good shape in Pacific Command in fiscal year 2016, and the budget for 2017 looks good for me. I am grateful for that.

There is always more, of course, and I will just mention a couple areas: munitions; submarines—my submarine requirement, as a combatant commander in the Pacific, is not being met, and that is solely because of numbers—ISR, intelligence, surveillance, and reconnaissance, that General Scaparrotti mentioned; and long-range antisurface missiles, weapons, which, I am pleased to note, is in the fiscal year 2017 budget.

Senator REED. I presume you would agree, General Scaparrotti?

General SCAPARROTTI. Yes, Senator. I agree. I enjoy a priority within PACOM and DOD [the Department of Defense] as well to ensure that my forces can fight tonight. The four needs that I noted are the primary ones.

Senator REED. Thank you very much.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Inhofe?

Senator INHOFE. Thank you, Mr. Chairman.

First of all, last week, we appreciate very much, Admiral Harris, your giving us the time that you gave us. I led a delegation of House and Senate members, and you were very nice to spend time with us when we visited you there.

Since that time, we had a personal visit with the Australian Minister of Defense; with our Marines in Darwin, in the northern part of Australia; the Singapore Minister of Defense; and the commander of COMLOG WESTPAC [Commander Logistics Group,

Western Pacific]; as well as Diego Garcia. We went a long ways around.

But going back to our visit with you, we thank you very much for that.

Just a minute ago, when we were also there visiting with you—and this would have been the 13th, last Saturday—we asked you a question about the budget. You were not forecasting any shortfalls at that time in the fiscal year 2017 projected PACOM budget, in the current threats in the Pacific. Is that what you just restated a minute ago?

Admiral HARRIS. Yes, sir. It is.

Senator INHOFE. Generally speaking, the forward forces are in pretty good shape when you get a hostile environment like we have right now. We talked about that when we were in your shop there. But it is usually at the expense of somebody else, in this case, the follow-on forces. Do you feel confident that they are being treated in a way that, should they be called upon, they have had adequate training that they would need to make this happen?

Admiral HARRIS. Yes, Senator. I am confident that the follow-on forces are in good position today.

Senator INHOFE. We do not hear that very often. I am glad to hear that.

General Scaparrotti, there are currently nine ongoing operations and exercises within PACOM, all vital to our international interests. I will not list those. You know what those nine are.

According to the Army budget overview, PACOM's combined operations consist of over 75,000 U.S. soldiers. How many of these strategic enablers are sustainable under the proposed Army budget now? Have you looked at that?

General SCAPARROTTI. Yes, Senator. I think that we can actually sustain the pace and operations that we have today for 2016 and 2017, in PACOM. Pacific Pathways has been very helpful throughout the Pacific. I think that is probably the one where we would adjust tempo, or perhaps pace, if there was budget pressure on that. But I am pretty confident we can maintain the exercises, and, in particular, those that we do on the peninsula.

Senator INHOFE. Yes, Pacific Pathways is the number two here. If something happened there, does that have an effect on any of the others?

General SCAPARROTTI. Well, sir, I think it would affect others in the sense that Pacific Pathways is very important to partner development. It brings a lot of capability within the Pacific, not only to the peninsula itself.

Senator INHOFE. All right. The international standoff deepened earlier this month when North Korea, of course, ignored repeated warnings by the regional powers.

Do they pay any attention to the regional powers? We have been talking about this for a long time.

Admiral Harris, do you think, when they have all these warnings by us and by others that are out there, does that mean anything to them, North Korea?

Admiral HARRIS. I am not sure what means anything to North Korea, Senator. But I have to think that the pressure brought on by our alliance with South Korea and other nations in the region,

they do take note of that. If they did not take note of it, I am not sure where we would be.

I believe that they also listen to China, though I think the Chinese influence on the North is waning compared to what it has been in the past.

Senator INHOFE. On the 9th of February, we had a hearing with James Clapper, and he expressed very much of a concern with the acceleration that is taking place.

A minute ago, you said that we are probably in pretty good shape in PACOM. That is what you said when we were there last Saturday. Since that time, you have all these—and I will submit these three for the record, Mr. Chairman. You actually talked about the Wall Street Journal but also the Washington Post; and, just yesterday, Japan's Foreign Minister canceling a visit to China; and then the tensions that came out in an AP [Associated Press] story just a few hours ago.

I would like to submit those for the record.

Chairman MCCAIN. Without objection, they will be included.

[The information referred to follows:]

The Washington Post

WorldViews

Satellite images show China may be building powerful radar on disputed islands

By Simon Denyer February 22

Satellite images show China may be building a powerful new radar system on a disputed island in the South China Sea, which could have worrisome military uses in monitoring -- and potentially trying to control -- a strategically vital waterway, according to the Center for Strategic and International Studies (CSIS).

Gregory Poling, head of the Asian Maritime Transparency Initiative at CSIS, said the images appear to show a high-frequency radar installation being built on Cuarteron Reef, one of seven islands China has recently expanded through a massive land reclamation program in the Spratly chain.

"If it is an HF radar, then it would enormously boost China's capacity to monitor ships and aircraft in the South China Sea," Poling wrote by email. "Cuarteron is the logical place for such an installation because it is the southernmost of China's features in the Spratlys, meaning that it would be the best place if you wanted early warning radar to give notice of ships or planes coming up from the Strait of Malacca and other areas to the south such as Singapore.

"This would be very important in a Chinese anti-access area denial strategy that sought to reduce the ability of the U.S. to operate freely in the South China Sea, including bringing forces up through the South China Sea in case of any future crisis in Northeast Asia," Poling wrote.

The Strait of Malacca passes between Malaysia and Indonesia and is one of the most important shipping lanes in the world, while a third of the world's shipping, and much of Asia's oil, passes through the South China Sea.

China has built up seven islands in the South China Sea, and is in the process of constructing three runways on those islands. The United States says it is concerned about the growing militarization of the South China Sea, Secretary of State John F. Kerry expressed "serious concern" last week when other satellite images showed what appeared to be surface-to-air missile batteries deployed by China on Woody Island, part of the Paracel chain, also in the South China Sea.

China says its construction program in the South China Sea is mainly for civilian use, adding that it is only building limited and necessary defensive facilities on what it considers to be its sovereign territory. It points out that other nations have also reclaimed land and built runways in the past, although not on anything like this scale.

"It is certainly possible to claim a civilian purpose, and China will," Poling wrote. "But just like you don't need a 3,000-meter runway to land civilian planes, you don't need a high-frequency radar (assuming that is what this is) to give early warning of commercial traffic. Radar is inherently dual-use, but just like its other "dual-use" infrastructure in the Spratlys, the real value is military. More limited radar, like China has at every other feature in the Spratlys, is more than sufficient to monitor and ensure the safety of civilian traffic near the features."

China points to lighthouses it has constructed on two islands, as well as meteorological stations and shelter and rescue facilities, to highlight the civilian nature of its construction program. One of the new lighthouses sits on Cuarteron Reef.

On Monday, Chinese Foreign Ministry spokeswoman Hua Chunying accused the United States of "sensationalizing the South China Sea issue" and "hyping up tensions."

"Islands in the South China Sea have been part of China since ancient times," she said at a daily news conference. "The Chinese side is entitled to safeguard its territorial sovereignty and maritime rights and interests. China conducts construction on relevant islands and reefs mainly for civilian purposes of providing better public services and goods for the international community. China's deployment of limited defense facilities on its own territory is its exercise of self-defense right to which a sovereign state is entitled under international law. It has nothing to do with militarization. It is something that comes naturally, and is completely justified and lawful. The U.S. should view that correctly instead of making an issue of that with deliberate sensationalization."

Other photographs supplied to The Washington Post by CSIS also show radar facilities being built on other islands in the Spratlys, which are also claimed in full or in part by Brunei, Malaysia, the Philippines, Taiwan and Vietnam.

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ge Credit: Flickr/ Foreign and Commonwealth Office UK

Japan's Foreign Minister Cancels Plans to Visit China

Japanese Foreign Minister Fumio Kishida is calling off his plans to visit China this spring.

By Ankit Panda
February 22, 2016

Are Japan and China heading toward a new freeze in high-level diplomatic contacts? Tokyo's strong response to North Korea's recent provocative behavior, including a January nuclear test and a February satellite launch, combined with its increasing interest in the South China Sea have struck a nerve in China, it seems. In a manifestation of rising tensions, Japanese Foreign Minister Fumio Kishida is calling off his plans to visit China this spring, *Kyodo News* reports, citing Japanese government sources. Kishida's decision came after the Chinese government informed Japan that it was not planning to arrange a visit for Japan's top diplomat.

Kishida had said that he would visit China later this spring. "I would like to move bilateral ties

forward through my plan to visit China around spring," Kishida had remarked in a foreign policy speech on January 19. At the time of that speech, Japan had joined the United States and South Korea in issuing a strong unilateral rebuke to North Korea after it tested a nuclear weapon. China expressed its dissatisfaction with the regional response to the nuclear test and, later, to the satellite launch that took place earlier this month. Beijing would prefer to see a return to multilateral diplomacy with North Korea, preferably through a resumption of long-stalled Six-Party Talks.

The South China Sea issue is another pressure point in China-Japan relations, as Tokyo appears poised to increase its involvement in the region. Though the South China Sea is geographically distant from Japan, the Abe administration is taking an active interest in the disputed waters. In October 2015, three days after the United States Navy carried out its first freedom of navigation operation within 12 nautical miles of a disputed feature where China has built an artificial island, the Japanese Maritime Self-Defense Force joined its U.S. counterpart for its first-ever exercise in the South China Sea. In November 2015, consultation between Japan's defense minister and his Vietnamese counterpart suggested that Japanese naval vessels could be making port calls in Vietnam this year. Vietnam is a claimant in the South China Sea. Following these developments, China said that it was on "high alert" for any Japanese "intervention" in the South China Sea issue.

While ties between Japan and China have remained frosty since Shinzo Abe returned the prime minister's office in December 2012, they had recovered to a working level in late-2014. In 2012, under the previous Democratic Party of Japan government led by Yoshihiko Noda, Japan's bilateral relationship with China suffered after Tokyo chose to nationalize the Senkaku/Diaoyu Islands in the East China Sea, which are administered by Japan but claimed by China. From the nationalization of the Senkaku/Diaoyu Islands in 2012 through most of 2014, high-level diplomatic contacts between China and Japan were almost entirely frozen. It was with great effort–notably the "four point consensus" forged between Chinese State Councilor Yang Jiechi and Japanese National Security head Shotaro Yachi–that the bilateral relationship reverted to something close to "normal."

While the recovery wasn't complete and the bilateral remained on thin ice, the cancellation of Kishida's visit does not bode well for the future trajectory of China-Japan ties. 2016 may feature a return to a diplomatic freeze between Tokyo and Beijing.

Feb 22, 8:11 PM EST

TENSIONS RISING ON DMZ, NORTH KOREAN OFFICER TELLS AP

BY ERIC TALMADGE
ASSOCIATED PRESS

AP Photo/Wong Maye-E

PANMUNJOM, North Korea (AP) -- Tensions have increased significantly along the Demilitarized Zone since North Korea's recent nuclear test and rocket launch, a North Korean military official told The Associated Press on Monday, adding that while he could not comment on operational details, "the reality is that it is touch and go."

Though parts of the world's most fortified border can seem like a tourist trap, drawing throngs of camera-happy visitors on both sides every year, to the military-trained eye the Cold War-style standoff along the 257-kilometer (160-mile) DMZ - established when the 1950-53 Korean War ended in an armistice, not a peace treaty - is an incident waiting to happen.

That's now truer than ever, the North Korean officer said, as tensions are escalating between Pyongyang, Seoul and Washington. Thousands of U.S. troops are deployed in South Korea and units based around the DMZ have the motto "Be Ready to Fight Tonight."

"People come here and they think it's like a resort. But if you know it better, you know how dangerous it is," Lt. Col. Nam Dong Ho of the North Korean People's Army said in Panmunjom, the truce village where the armistice was signed.

Nam said tensions have increased significantly since the nuclear test in January and rocket launch earlier this month. "Something could happen at any time," he said.

To stand on the North Korean side of the Demilitarized Zone is almost otherworldly.

After crossing through military checkpoints and passing roadside concrete structures rigged to detonate and keep any vehicles from passing - defenses that are also common in the South - the air is peaceful and fresh, and birds can be heard chirping as they fly over a carefully manicured landscape dotted with rock monuments and meticulously maintained historical buildings.

But closer to the Demarcation Line that marks the actual border, soldiers stand rigidly on guard, armed and intimidating, often just a few steps away from their South Korean counterparts.

On Monday, the surreal feeling at the Demarcation Line was heightened by the absence of anyone - soldiers or civilians - visible on the South's side.

South Korea halted tours to its side of the DMZ the day after the Jan. 6 nuclear test, when it also announced it would resume cross-border propaganda broadcasts, which have in the past brought strong recriminations from North Korea. The tours have gradually resumed. A popular observatory where people can catch a glimpse into the North via binoculars was set to reopen Tuesday.

Along with restarting the broadcasts, South Korean President Park Geun-hye responded to the North's nuclear test and launch by shutting down a joint industrial park in Kaesong, a city just north of the DMZ, and telling the South Korean National Assembly that if North Korean leader Kim Jong Un doesn't change his ways his regime will surely collapse - predictably outraging the North.

North Korea reacted by putting the industrial park under military control, cutting off emergency hotlines with Seoul and - through its state-run media - accusing Park of being a traitor and a "senile granny."

"I don't even want to utter her name," Nam said. "I'm just a soldier so I don't know how the situation has changed. But as the Kaesong industrial zone has been totally closed by South Korea, our people and army are getting more enraged."

Nam said the broadcasts cannot be heard in Panmunjom during the day, which he suggested was because the South doesn't want them to be heard by South Korean tourists.

"But when it's quiet, late at night, you can hear them here," he said.

North Korea says it is developing nuclear weapons for self-defense and has the

sovereign right to launch satellites as part of a peaceful space program. But both are generally seen as violating longstanding United Nations resolutions. The U.N. Security Council is still discussing its response, but the United States, Japan and South Korea have already announced new sanctions on the already-heavily sanctioned North.

The standoff is likely to get worse before it gets better.

Keeping its own military profile high, the United States flew four stealth F-22 fighter jets over South Korea and reaffirmed it maintains an "ironclad commitment" to the defense of its ally after the rocket launch. Last month, it sent a nuclear-capable B-52 bomber over South Korea following the North's nuclear test.

South Korea and the United States are expected to hold large-scale war games next month.

South Korea's defense minister has said about 15,000 U.S. troops will take part in the annual exercises, double the number Washington normally sends. The two countries have also begun preparatory talks to deploy a Terminal High-Altitude Area Defense anti-missile system in South Korea.

That is strongly opposed by neighboring powers China and Russia, since the radar would allow Washington to reach well into their territory as well.

Nam, the North Korean officer, said he remains focused on his duties. But he added that, now that North Korea says it has an H-bomb - a claim disputed by some outside experts - the U.S. might be better advised to focus on negotiating a peace treaty to formally end the Korean War.

"On the international stage, the U.S. talks about peace," he said. "But it should not interfere in the affairs of other countries."

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Senator INHOFE. Then I would like to have you, for the record, maybe, Admiral Harris, kind of explain that if it seemed at the time of our visit on Saturday that things were under a level of control in terms of the budget concern and the resources that would be allocated to you, why there would not be an insufficiency now since these things happened since our last Saturday visit. Just looking at it very honestly with acceleration as to what those resources are, are they really adequate, for the record?

Admiral HARRIS. Thanks, Senator. I believe, for the record, that PACOM is adequately resourced in fiscal year 2016 and in the 2017 budget.

Senator INHOFE. Okay, that is fine. I just wanted you to elaborate on that for the record, after this meeting is over.

The information referred to follows:

I support the President's fiscal year 2017 budget and feel it addresses many of the Indo-Asia-Pacific Theater priority programs and requirements. I believe the budget allows me to meet the strategy in the USPACOM area of responsibility. USPACOM worked closely with the Office of the Secretary of Defense (OSD) and the Services to ensure the final President's Budget was adjusted to fund key weapon systems and modernization efforts which address adversary high-end capabilities and provides adequate force structure needed in the Pacific Theater. Critical investments include: Upgrading fourth generation fighters and procuring sufficient fifth generation aircraft; investing in precision munitions (i.e. AIM–9X, AIM–120D, SM–6, MK–48); sustaining Long Range Anti-Ship Missile (LRASM) procurement; procuring *Virginia*-class submarines, enhancing other undersea capabilities, and resourcing advanced Intelligence, Surveillance, and Reconnaissance (ISR) and Command and Control (C2) systems (i.e. E–2D Advanced Hawkeye and P–8 Poseidon).

If additional resources were to become available, I would prioritize additional investments in the following areas: accelerate *Virginia*-class submarine procurement, procure additional F–35 Joint Strike Fighters, and procure additional critical munitions (AIM–9X, AIM–120D, SM–6, MK–48).

However, as I testified during my confirmation hearing and have discussed publically elsewhere, I believe that sequestration, if it continues in force after 2017, will significantly harm USPACOM forces and my ability to meet my strategic objectives.

Admiral HARRIS. Yes, sir. I am happy to do that.

Senator INHOFE. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Gillibrand?

Senator GILLIBRAND. Thank you, Mr. Chairman. Thank you both for your service and this hearing.

I am concerned about cyber threats from this region, in particular. How do you assess these threats? How are forward-deployed forces vulnerable to them? What can we do to address them better?

Admiral HARRIS. Thank you, Senator. I will start.

Cyber is the new frontier. It is the new threat vector. We are expending enormous resources across the department in getting after cyber. In the Pacific, we have stood up an organization called CYBERPAC, Cyber Forces Pacific, within Pacific Command. They look at DOD information systems defense or defensive cyber operations and offensive cyber operations.

I have assigned to me at PACOM cyber mission teams and we are learning how to use those teams. Again, this is new, but it is a very real threat not only to U.S. military forces, but to America in general, in my opinion.

General SCAPARROTTI. Senator, I thank you for the question.

As Admiral Harris said, this is a domain that we are learning that is very challenging and in particular in the peninsula, because North Korea also has a very deliberate goal of increasing their cyber capability. As you know, they have demonstrated that both here with the Sony attack in the United States and also in Korea against their banking and media industry in 2013.

It is a great concern to me. We have increased our joint cyber center capabilities over the past year. We continuously work at that. I also now have been deployed a cyber mission team, and I work also with the teams and am supported by the teams in PACOM.

I would just make one other comment. It is important within the alliance that I and the Republic of Korea's cyber teams develop a

much closer relationship, because we do have a unique vulnerability in that we have systems that are ROK-United States that support the alliance specifically centric.

We are working hard as an alliance as well to ensure that we have a proper defense and a capability that we require within the domain.

Senator GILLIBRAND. I also have concerns specifically about China. I think China is making significant progress in its military modernization initiatives. In fact, it is currently testing the J–20, its fifth-generation competitor to the F–35. How effective is our current defense posture and network of regional partners in deterring Chinese expansion? In which areas are we lacking depth of strategic operations or tactical levels? What do you think are the most effective ways to ensure China's rise is peaceful? Last, are there any particular United States military capabilities with which you see China closing the gap?

Admiral HARRIS. I will start, Senator.

I think that, in the capability realm, I asked for increased surface-to-surface weapons. When I started flying P–3s back in the late 1970s, we had the Harpoon missile. That is the same missile we have today.

We need to have an increased lethality and reach and speed that I talked about before. I am grateful that the Services responded to that request, and in fiscal year 2017 budget, there is increased funding for programs to increase that lethality of surface-to-surface missiles.

I think Deputy Secretary of Defense Work just recently spoke of the SM–6 missile and its capability in the surface-to-surface mode or against surface targets.

The LRASM, the Long-Range Anti-Ship Missile, which is air-launched now, is another great capability that we need to bring online fast, and I am grateful for that.

I wrote also about the need for increasing the buy, and rate of buy, of F–35s, the Joint Strike Fighters. I am pleased that in the fiscal year 2017 budget, that is in there. I am glad about all of that.

As I mentioned before, we have a shortage in submarines. My submarine requirement is not met in PACOM, and I am just one of many COCOMs that will tell you that. That is our principal asymmetric advantage over China and any other adversary, and I think we have to keep after it. I think it is important in the long run to modernize our force for the future.

To get at your last question about what we can do, I think diplomacy is probably the key. We have to have a strong defense backed up by active diplomacy. I think we need to use diplomacy to influence China toward an acceptable behavior in the international space.

General SCAPARROTTI. Senator, I would just add, and emphasize the last point.

On the peninsula, one of my concerns is that, if there is conflict, what are China's actions? We plan for those possibilities. I am sure they do as well. I think diplomacy and engagement, which PACOM engages with them regularly to have these conversations, is very

important, so that they understand our intent, and we have those communications, if we should have a conflict on the peninsula.

Chairman MCCAIN. Senator Ayotte?

Senator AYOTTE. I want to thank both of you for your service to the country.

Admiral Harris, I want to thank you for also visiting the Portsmouth Naval Shipyard. We are really appreciative of that visit.

To follow up on what I have heard you say today, in terms of the gap of our attack submarine fleet and the needs that you have in PACOM, what role, first of all, does the *Virginia*-class submarine play in the importance of our supremacy undersea? How big is this gap? We actually asked the Navy this morning about all of the combatant commands, and the Navy told us that only 62 percent of the requests for attack submarine support are being met right now. What is the gap like in PACOM as well?

Admiral HARRIS. The gap is about 62 percent. The exact numbers are classified. I would be happy to have that discussion with you. But we experience an attack submarine shortfall in the Pacific, and I would maintain that the Pacific is the principal space where submarines are the most important warfighting capability we have.

As far as *Virginia*-class submarines, it is the best thing we have. It is the best thing we have. I cannot get enough of them, and I cannot get enough of them fast enough.

Senator AYOTTE. Great. Thank you. I think this is the issue that you raised as we think about sequestration, the long-term impact on our investment in our attack submarine fleet, which is so critical to the defense of the Nation and, obviously, an area where we have very important supremacy undersea with the challenges that we are facing in the region.

But if we do not have presence, then we obviously cannot address our security needs. Our presence in the region is probably as important as anything else. Would you agree with that?

Admiral HARRIS. I do. If you do not have presence, then you better have reach. That reach comes from submarines and aircraft and the like. We need the new SSBN [ballistic missile submarine], SSBN-X [*Ohio*-class replacement submarine], in the 2020s, and we need the new long-range bomber as well.

Senator AYOTTE. I also wanted to ask you about unmanned underwater vehicle R&D [research and development] and what you think we should be doing in terms of conducting research, development, and fielding advanced unmanned underwater vehicles. Is that something we need to invest in and focus on going forward?

Admiral HARRIS. I think we must invest, Senator, in advanced underwater vehicles and go forward with it, not only in antisubmarine warfare and all of the things that UAVs can provide us in that regard, but also in mine warfare to get after the mine threat that we will face.

Senator AYOTTE. How are we doing on that, compared to, for example, China or other countries?

Admiral HARRIS. I think we are doing okay in it, but we need to do a lot more.

Senator AYOTTE. Okay, thank you.

I wanted to also ask, General Scaparrotti, as we look at the actions of North Korea that have been discussed today—recently, ob-

viously, the underground nuclear tests, the ballistic missile launching—how do you assess what they are doing right now? I know there is always a pattern of escalation and looking for an international response, but it strikes me that Kim Jong-un is even less reliable, obviously, than his father.

Where do you assess this situation, and what more should we be doing to respond?

Secondly, what is your prediction in terms of what we might see next from the North Koreans? Or is it just so unpredictable from your perspective?

General SCAPARROTTI. Thank you, Senator.

First of all, I think Kim Jong-un has been clear that he intends to establish himself and wants to be accepted as a nuclear nation with a valid missile capability to deliver those assets. Of course, he claims he can do that today. He wants to be recognized as such.

He said, despite international sanctions, that he will continue to develop his nuclear and his missile capabilities. Despite our deterrence, as you have seen, he has continued to do so.

I think his calculus is, at this point, that those tests that he just conducted in January and February, that they were within his risk tolerance; that he could conduct those; and at some point in the future, in the next 3 or 4 months, move beyond it, just as he has done in cycle of provocation and relaxation over time, which has been their norm.

I do worry about his calculation being wrong, at some point. I state that is what I worry most about.

His view of the world is a very isolated one. Given the way that he leads, in terms of the brutal nature of his leadership, I am not sure that he gets a lot of good advice or at least critical advice from those around him.

Senator AYOTTE. I think you are pretty hesitant when you are around him to give any contrary advice also. That is the problem.

General SCAPARROTTI. I think we will see increasing tension as we go into this training period coming up here in February and March. I think what we should do, to ensure that our alliance is strong, is that we maintain our deterrence activities that we have there, particularly our large exercises here. There is no doubt in my mind that he knows of our capability and believes that he cannot defeat it.

I think stronger sanctions are very important for the international community.

Senator AYOTTE. Excellent. We recently passed very strong legislation.

General SCAPARROTTI. I appreciate that.

Senator AYOTTE. I think that sets the stage for the sanctions piece. Thank you.

General SCAPARROTTI. Yes, ma'am.

Chairman MCCAIN. Senator King?

Senator KING. Thank you, Mr. Chairman.

General Scaparrotti, I think your analysis is exactly right. Almost all wars in history are started from a miscalculation. I think, for that reason, it seems to me that part of our strategy should be very clear about what our capabilities are, what our red lines are, and when we will act, so that there is not a miscalculation or mis-

understanding or an underestimation of our capacity. Would you agree?

General SCAPARROTTI. Yes, sir, I would agree.

Senator KING. Admiral Harris, what are the strategic implications for the United States strategy in the Pacific of the Chinese Anti-Access/Area Denial, so-called A2/AD, strategy?

It seems to me that forces us to question the strategy of the carrier as the primary instrument, the development of the standoff cruise missiles by the Chinese. This, it seems to me, is a moment of inflection, in terms of what our strategy is in that region.

Admiral HARRIS. Thanks, Senator.

We have predicted the demise of the carrier since I have been in the Navy. We had the Soviets with their submarines, carriers, and all their capability, and we questioned the survivability of the carrier then, and then the Soviets went out and tried to build their own. Then they sold it to China, and China is using it, and they are building their own now.

If the carrier were really irrelevant, then I question why these competitors and peer competitors are trying to build their own at the rate they are building them.

I think the A2/AD strategies that China imposes are serious, and we have to seriously consider them and work around them.

Senator KING. It seems to me that we need to think about the range of our weapons.

Admiral HARRIS. We do. Yes, sir. That is one of the issues that I spoke about earlier.

In our regular ship surface-to-surface weapons, we are out-stuck by the Chinese today. But because of this committee and Congress, we are going to be in good shape in 2017, as we put money into those systems.

I think, again, the original stealth platform is the submarine, and we will be able to win in any conflict at sea when we apply the joint force to that.

I am comfortable with the carrier operating in those waters, but we have to consider it. We have to consider the threat.

But the Chinese A2/AD threat is not 10-feet tall. It is not even 6-feet tall, in my opinion.

Senator KING. You mentioned the importance of diplomacy as part of the overall strategy. Would part of that be the advisability of the U.S. acceding to the U.N. Law of the Sea Treaty?

Admiral HARRIS. In my opinion, Senator, yes.

Senator KING. That would help us in dealing with some of these fuzzy claims in the South China Sea?

Admiral HARRIS. I believe that U.S. accession to UNCLOS is a positive.

Senator KING. I have looked at the map. We ought to call the South Atlantic the South American Sea or something, because just the name, it is nowhere near China.

Admiral HARRIS. Yes, sir. We do call the Gulf of Mexico the Gulf of Mexico.

Senator KING. Not the Gulf of Florida, interestingly.

Admiral HARRIS. That is right.

Senator KING. Just yesterday, there was a report of the fastest sea level rise in 28 centuries, and a projection that, by the end of

this century, sea level could rise 3 to 4 feet. Are you looking at the strategic implications of that, both in terms of our infrastructure that is on the coast, but also the stability of areas within your command, Bangladesh, low-lying coastal cities throughout the region?

Admiral HARRIS. I look at it in a capability way, because it will be PACOM forces or U.S. military forces that respond to disasters caused by flooding or tornadoes or typhoons or whatever, so I look at it in that way. But, frankly, I am not looking at rise in sea levels and its effect globally toward the end of century. That is just too far out for me.

I worry about what is happening in the near term and what I can do about it, and how I can be helpful.

Senator KING. Would it not be prudent though to analyze our infrastructure, just to do a tabletop on what would happen if sea level went up a couple feet in San Diego or Guam or Hawaii?

Admiral HARRIS. Certainly. Yes, sir. It clearly would.

Senator KING. Finally, what is China's goal? What are their strategic goals? Is it purely defensive? Is it offensive? Do they want to take territory? What is behind this buildup that they are engaged in?

Admiral HARRIS. Senator, this is my opinion. I believe China seeks hegemony in East Asia.

Senator KING. Simple as that?

Admiral HARRIS. Simple as that.

Senator KING. Regional control?

Admiral HARRIS. Yes, sir.

Senator KING. Thank you, Admiral.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Ernst?

Senator ERNST. Thank you, gentlemen, for being here today. We, certainly, appreciate your service.

Admiral Harris, in 2014, the Marine Corps announced its Expeditionary Force 21 doctrine, which stated that, after over a decade of land-based combat operations, the Marines were going to start returning to their amphibious roots. I believe the success of this effort is vital in order to respond to a rising China and to assist our allies in that region.

Are you comfortable with the Navy and Marine Corps forces that are postured to provide expeditionary capabilities to meet your PACOM requirements?

Admiral HARRIS. Senator, I am, but I will be the first to say that 14 years of fighting in Iraq and Afghanistan land wars, there are majors in the Marine Corps, O–4s, that have never served at sea in the Fleet Marine Force.

Senator ERNST. Correct.

Admiral HARRIS. I welcome their return to amphibiosity. But it is not just the Marines. The Marines are involved in training our allies and partners, as they see the benefits of having an amphibious capability for their areas, for example, Indonesia and all of the archaeological islands that comprise that country, Japan and their interest in amphibious warfare, and on and on.

I am pleased with the work that we are doing and especially pleased with the work that the Marines and the Army are doing

to increase the amphibious capability of our friends, allies, and partners in the region.

Senator ERNST. Very good. You have a strategy for closing that gap, like you said, the O4s mostly have land-based combat operations?

Admiral HARRIS. Right. I had a strategy when I was the Pacific Fleet commander, and now I get to task the Pacific Fleet and the Marine Forces specific to come up with that strategy and work it.

Senator ERNST. Very good. I am very excited about that. We are getting back to the basics, I think, for all of our forces out there.

Do you agree with the Navy-Marine Corps Joint Forcible Entry capability with a validated ship requirement of 38?

Admiral HARRIS. I do. The forcible entry requirement is critical not just for the Marines but for the Army as well.

Senator ERNST. Do you think that that will be able to be maintained, then, moving into the future?

Admiral HARRIS. I do not know. I hope so. I hope that we will be able to get our amphibious ship levels to that standard.

Senator ERNST. Okay, thank you, Admiral.

Over the past several weeks, just a slightly different topic, but over the past couple weeks, we have had a number of very distinguished witnesses, such as Lieutenant General Thomas Conant, a former PACOM deputy commander, and General Carter Ham, the former commander of AFRICOM [United States Africa Command] and United States Army Europe. They have spoken very highly of our National Guard State Partnership Program.

I do believe that this program is key in working with our allies, and developing our allies and their capabilities. But I am concerned because in the PACOM or in the Asia-Pacific area, there are very few State Partnership Programs out of 70 different unique programs that we have worldwide. I think it is important that we exercise these types of programs and develop those relationships with those countries.

Could you speak to that a little bit, sir?

Admiral HARRIS. I can. I am a huge fan of the State Partnership Program. I have seen it work in the Pacific. General Grass and I have talked about it, and I have asked for an increase in state partner relationships out there.

But for the countries in the region, their state partners, our Guard forces, are often their principal training relationship. It is critical for all the reasons you mentioned. General Grass and I are in lockstep on the way forward in the Pacific.

Senator ERNST. Are there certain countries that we should be working more with, with a state partnership relationship?

Admiral HARRIS. Sure. Mongolia comes to mind in, and we have asked for that.

Mongolia is a perfect case in point of a country that would benefit greatly from our State Partnership Program.

Senator ERNST. That is very good. We have many States that already have developed relationships, and sometimes look for second partnerships as well, so thank you.

General Scaparrotti, do you have any thoughts on the State Partnership Program?

General SCAPARROTTI. I, too, am a big fan of that. The relationships that are built over time, the trust that is built, are very important. That is really the glue that helps us improve not only that relationship, but, importantly, to develop capacity within our partners.

Senator ERNST. Fantastic. Thank you.

Thank you very much.

Chairman MCCAIN. Some of that depends on the attractiveness of the State. Don't you think that has a lot to do with it?

Senator Nelson?

Senator NELSON. Thank you, Mr. Chairman.

General, when does China yank North Korea's chain? What is the point at which they really get serious that North Korea is getting out of control with the nuclear weapons capability?

General SCAPARROTTI. Sir, I wish I knew the answer, because we have been trying to find that spot, frankly. I think they have underestimated the danger of KJU [Kim Jong-un], at this point. He is clearly confident in his ability to provocate and control a situation, so I would encourage them to reconsider that at this time.

But, obviously, they still, despite these recent events, appear to be reluctant to take some serious steps, which they certainly could.

Senator NELSON. Do they seem to be, certainly, the one applying economic pressure, and so forth. I mean, do they fear a united Korean Peninsula so much, and/or do they fear too many refugees coming in, that this nuclear threat is not enough for them to pull that chain?

General SCAPARROTTI. Well, I think first they fear instability on their border, if that were to occur, the refugee problem it would create for them along the border, and then also the security of the WMD [weapons of mass destruction]. North Korea not only has nuclear but they have probably one of largest chemical and bio stockpiles—chemical, in particular, but bio capability—around the world.

That is their first concern, getting control of that, if it were to be an unstable country.

Secondly, I believe, too, that it provides them a buffer, and they would fear a unified Korea, particularly with a United States ally. They would be concerned where our forces would be stationed.

Senator NELSON. As you all wargame this, what is China's position, if the young gentleman goes off his rocker and launches an attack against us, an attempted attack, because presumably we would have the capability of knocking it down? In a wargame like that, what do you expect for China's reaction?

General SCAPARROTTI. Sir, we actually have that as a part of our wargaming and planning. I think our first thing, as I mentioned earlier, is that we count on engagement with them. We work on engagement, particularly with PACOM, on a regular basis in order to give us that relationship. If and when there is any, even a provocation on the peninsula today, we make contact to make sure they understand our intent.

This is my personal opinion. I think that China is also looking at those possibilities in their calculation, and probably are more inclined lately to intervene potentially, at least in the border areas

and to the extent that they would be concerned about control of those WMDs as well.

I think intervention is more of a likelihood, in my mind, in the few years that I have been in command now, than it was, say, 2 years or 3 years ago.

Senator NELSON. It may be one of the areas that China would suddenly see that it has its interests aligned with the interests of the United States.

Admiral, it is great to see you.

Mr. Chairman, he is a great product of Pensacola, Florida. As a native Floridian, you can hear it in the lilting tone of his voice.

Admiral, share with us your thought of the importance, from a national military perspective, of the Trans-Pacific Partnership [TPP].

Admiral HARRIS. Sir, I am just going to bask a little bit in that lilting-ness just for second here.

The Trans-Pacific Partnership, I believe, is an important component of the economic part of the rebalance. I have spoken of the rebalance being comprised of the military, diplomatic, political, and economic parts. In the economic sphere, which I have said is the most important component of the rebalance—the most visible piece is the military piece, because you can see an aircraft carrier or Joint Strike Fighter or Stryker vehicle and all that.

But the most important part of the rebalance, to America, is really the economic component. In that economic component, you have energy and you have TPP. I think that TPP binds us to the 11 other nations that are part of TPP.

The standards that it takes for a country to enter TPP is helpful. It is helpful to the global trade piece, and it is helpful to those things that we view as important as conditions of entry.

I think the fact that there are countries waiting in line to figure out how to get in, I think that is important as well, and indicative of how TPP is viewed now in the Pacific.

Senator NELSON. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Sullivan?

Senator SULLIVAN. Thank you, Mr. Chairman.

Thank you, gentlemen, for your testimony. I appreciate the opportunity to get caught up yesterday.

Admiral, I appreciate you talking about the TPP, not only in terms of economics, but energy. As we discussed yesterday, the United States has an enormous opportunity now, in terms of our competitive advantages in energy, LNG, oil exports to our allies and even other countries in the region. I think it is something we need to be taking advantage of.

I want to follow up on the chairman's questions on the South China Sea. Secretary Carter was testifying here a few months back when we had done the first FONOPs [Freedom of Navigation Operations]. I am a big supporter of Secretary Carter, but I think there was some concern here on the committee that an opportunity to actually announce in a robust, articulate way what we were doing was missed, because we literally had to press it out of him just to get any details on what the heck was going on.

From your perspective, what exactly is our policy with regard to the South China Sea, our freedom of navigation operations? What is the purpose? What is the goal? Should we be doing this on a regular basis, as the chairman said, also with our allies?

Admiral HARRIS. Thanks, Senator.

I believe the purpose of freedom of navigation operations, and the other operations we do in the South China Sea, is to exercise our rights on the high seas and in the airspace above it on a regular basis.

Senator SULLIVAN. To what end? What is the goal?

Admiral HARRIS. The goal is international rules and norms. This is international water and international airspace. If we do not exercise our rights, or if those rights are not routinely exercised by someone, then we stand a chance of abdicating those rights to someone else.

The regular exercise of freedom of navigation, in my opinion, is critical. It is important, and it is something that we must continue to do.

Senator SULLIVAN. Do we have allies who are interested in doing that with us for the same reasons? Are we looking to coordinate with them in terms of future FONOP operations?

Admiral HARRIS. We have allies, friends, and partners, Senator, that are very supportive of our freedom of navigation operations. There are some of those who are willing to consider doing them with us, but there are others that are unable to, either because of their own military capability or lack thereof, or of their internal politics, I guess, and of their relationship with China.

Senator SULLIVAN. Do you think that it would be helpful to have additional allies, whether they are from the region or maybe some of our NATO [North Atlantic Treaty Organization] partners?

Admiral HARRIS. It would be helpful. I have encouraged other countries to conduct operations in the South China Sea, because, at the end of the day, South China Sea is international waters, in my view.

Senator SULLIVAN. We talked about Okinawa yesterday. Can you just give us an update on what more we should be looking at doing? We are helping our allies, particularly with regard to Japan, in terms of the Marine redeployment there.

Admiral HARRIS. We have this relationship with Japan in Okinawa. We have an obligation to defend Japan, and they have an obligation to provide us a place from which to defend them. Okinawa is one of those critical places where we must be in order to meet our treaty obligations to defend Japan.

A few years ago, through a lot of increasing tensions over the years, Japan asked us to move our forces out of Futenma to someplace else. Our response to that is, sure, you build a new place and we will move our forces there. That is a simplistic view, but that is how we agreed to move from Futenma to the Futenma Replacement Facility, Camp Schwab, Henoko.

In that process, we agreed also to relocate 8,000 to 10,000 Marines out of Okinawa. For that, you have the Guam piece, the Hawaii piece, and part of the Marine rotation forces in Darwin. You have all of that, which is a follow-on to once we start moving Marines from Futenma to the Futenma Replacement Facility.

The challenge we have is to get the build done on the Futenma Replacement Facility, which is Japan's responsibility. That is their obligation to us.

Right now, it is slowed. It is a little over 2 years late. It was going to be done by 2023, and now we are looking at 2025 before that is done. That is when the big movement of Marines from Okinawa to Guam and Hawaii would take place, in the 2020s.

I believe we have to continue to fly and operate out of Futenma and continue to work with the Japanese, as they start to build the replacement facility at Henoko, Camp Schwab.

Senator SULLIVAN. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Hirono?

Senator HIRONO. Thank you, Mr. Chairman.

I would like to thank both Admiral Harris and General Scaparrotti for the time you spent with me yesterday. I appreciate that very much, and for your service.

General Scaparrotti, our very best wishes to you, as you go forward.

Admiral Harris, I am happy to see in your written testimony that you raise the Daniel K. Inouye Asia-Pacific Center for Strategic Studies, DKI APCSS, and the Center for Excellence in Disaster Management.

Can you talk briefly about the importance and the benefits that these two organizations provide to you as the commander of PACOM?

Admiral HARRIS. Yes, Senator. I believe the Daniel K. Inouye Asia-Pacific Center for Strategic Studies, DKI APCSS, is a true force multiplier for my operations in the Pacific. DKI APCSS is able to bring countries to Hawaii that I cannot go to. They enjoy special ability to link together students from all over the region in very positive ways.

In building those relationships, it helps me in the region, and it also helps those countries to realize the benefits of a relationship with the United States.

I cannot say enough about DKI APCSS and retired Lieutenant General Dan Leaf, who directs that. I am pleased to be able to work closely with him and the center. I am pleased that the center is a direct report to PACOM.

So, too, CFEDM, the Center for Excellence in Disaster Management, I think that that center has the capability and the potential to be a true storehouse of knowledge and lessons learned on how we do disaster management, not only in the region, but that can be shared globally for people who would seek that information.

Senator HIRONO. I think particularly as we natural disasters occurring more and more, that the center is very important. I have been visited the center a number of times. I totally agree with you that that is a really important resource. It is a resource for you as well as our country.

I want to turn to the relationship, the trilateral relationship, among Japan, United States, South Korean. This is for General Scaparrotti.

The tensions, as you say, are higher than ever, and there are some historical issues between Japan and South Korea that make

the relationship between these two countries particularly challenging. From your perspective, how do you see this relationship currently and moving forward? Perhaps with the tensions between South and North Korea now, perhaps South Korea will be moving more closely to Japan. How do you see this developing?

General SCAPARROTTI. Senator, thank you. It is an important question and an important relationship for us.

I see it positive, and I see it moving in a positive direction. A year ago, we were having difficulty with trilateral relationships, encouraging mil-to-mil relationships, et cetera. Over this past year, there has been, I think, a concerted effort with both parties, with the U.S. as a partner to both, to improve that relationship.

As you know, Japan and Korea recently had high-level discussions, as well as a meeting between the Prime Minister and the President Park that resolved the comfort women issue. I think that was significant, as well as the pressures from North Korea. I think both have encouraged them to increase the trilateral relationship.

Admiral Harris just hosted a conference with the two chairmen from each of those countries, as well as General Dunford. I think we have the foundation now to move forward in the future with greater mil-to-mil exercises, as well as probably an encouraging environment for increasing information flow between the three countries.

Senator HIRONO. Thank you.

This is for Admiral Harris. The actions of North Korea have been particularly troubling, especially with their so-called hydrogen bomb test and their rocket launch into space. Do you see North Korea as a nuclear state? If so, what does this mean for the United States and the U.N. [United Nations]?

Admiral HARRIS. They clearly have some nuclear capabilities. I am not convinced that the bomb that went off was a hydrogen bomb, but they clearly have some degree of nuclear capability.

I think they pose a very distinct and real threat, not only to peace and stability on the Korean Peninsula, but globally. As they develop their nuclear capability—and as I said before, they are on a quest for nuclear weapons, the means to miniaturize them, and the means to deliver them intercontinentally. They pose a real threat to Hawaii and to the West Coast, to the mainland of the United States, and soon to the entire U.S.

They pose a threat today, with their hundreds of thousands of rockets within rocket range of Seoul, to the 28,500 American troops that are posted there, their families, the hundreds of thousands of Americans who work in Korea, and our Korean ally and Japan.

They are a real threat today, and I encourage China, for example, to be helpful and to try to bring North Korea to the negotiating table and to do the right thing.

Senator HIRONO. Well, our best wishes on your continuing efforts on that score, because I know it is quite the challenge to have China step up and deal with North Korea in a way that would be helpful to stabilizing that region. Thank you very much.

Chairman MCCAIN. Senator Rounds?

Senator ROUNDS. Thank you, Mr. Chairman.

Admiral, first of all, let me say how much I appreciated the opportunity to visit with you at PACOM headquarters this last week

on the Inhofe codel. Your message was striking. At the same time, I came away a little bit puzzled with one part.

We have been working on the issues surrounding rebalance or a rebalance strategy since 2011. The rebalance, a strategic whole-of-government effort, guides and reinforces our military efforts, integrating with diplomatic, political, and economic initiatives. In August 2015, Secretary of Defense Carter described four elements of the military component of the Asia-Pacific rebalance.

Have you seen a doctrine that you put your strategy around, which is the rebalance? Or is it a series of concepts that are still being developed?

Admiral HARRIS. I believe that we have a strategy now, and it is the East Asia military strategy that was put out by OSD [the Office of the Secretary of Defense] last December, November or December. I think it captures it well. There are probably other things that will come out on that, but I am satisfied, in reading the East Asia military strategy piece—the Asia-Pacific strategy piece, rather, that it is captured in there.

But I think all the elements that I spoke about earlier on the rebalance are in play in the Indo-Asia-Pacific region. Just in the diplomatic and political spheres, for example, we now have the EDCA, the Enhanced Defense Cooperation Agreement, with the Philippines, which gives us access to their bases. We have the new defense guidelines with Japan, which is the follow-on to their peace and security legislation, which allows them some limited collective self-defense, which moves that relationship forward. We have access agreements with Singapore, which allows us to put our LCS, littoral combat ships, there, and P–8, P–3 aircraft there on a routine basis.

Of course, all the agreements we have with Australia, which is the cornerstone of our MRF–D deployment, the Marine Rotational Force Darwin deployment.

I am very pleased with those initiatives, which are in that diplomatic, political sphere part of the rebalance.

The military piece is, as I said, the most visible piece. You can see that. Then we have the economic piece, which is the most important part to the United States, in my opinion.

Senator ROUNDS. With regard to A2/AD, there seems to be considerable movement, a very quick movement, on the part of China in this area. Do you have the appropriate intelligence-gathering information? Do you need more tools than what you have right now?

Admiral HARRIS. I can always use more tools, Senator. I would like to know more about China's intent. But in that regard, what I need more than anything else is persistent ISR to keep that never-blinking eye on Korea.

Senator ROUNDS. Specific platforms that are not available to you now that you need?

Admiral HARRIS. There are platforms that are not available now that I have asked for.

Senator ROUNDS. Okay. They are coming?

Admiral HARRIS. It is being considered. It is part of the global allocation of forces. I compete with platforms along with Central Command, EUCOM, European Command, and the like.

Senator ROUNDS. In the current posture, the Chinese have clearly put us in a position where they are moving us, in terms of our safety zones, farther out, farther away. The LRS–B [Long-Range Strike Bombers] is being proposed right now.

Is the LRS–B an asset that you would consider critical, with regard to our future capabilities in the South China area? Seeing how they could be deployed out of North America, they basically would be in a position to make the strikes necessary at that time that perhaps some of our other carrier-based units might not be able to maintain, just based upon size and capabilities.

Admiral HARRIS. Senator, I am sorry. I do not know the acronym.

Senator ROUNDS. Long-range strike bomber.

Admiral HARRIS. Yes. It would be helpful. As I mentioned before, in talking about the next-generation bomber, all of that capability is important, not only the next-generation bomber, but the next-generation SSBN.

We need those to maintain a position of strength into the 2020s.

Senator ROUNDS. Mr. Chairman, thank you.

Senator REED. [Presiding.] On behalf of Chairman McCain, Senator Shaheen?

Senator SHAHEEN. Thank you, Mr. Chairman.

Admiral Harris, I am so glad to hear someone in your position who does not know one of the acronyms that is being used. It makes me feel so much better.

[Laughter.]

Admiral HARRIS. Acronyms kill, ma'am.

Senator SHAHEEN. Yes, they do. That was a very good pun.

I want to thank you both for your service. I want to start, I assume it should be with you, Admiral Harris.

There was a report that was just given to Congress this week that suggests that Chinese investments in the national security sector in the United States are growing. Is there any reason why we should be concerned about that?

Admiral HARRIS. Sure. I think that, depending on the area that they invest in, there is every reason to be concerned. We need to look at each one of these investments carefully. We have a process called CFIUS [Committee on Foreign Investment in the United States], another acronym. I could not begin to tell you what it stands for.

Senator SHAHEEN. That one I know.

Admiral HARRIS. All right. But that allows us a mechanism, a legal mechanism, to perhaps prevent China from buying or investing in certain areas. I have used it before, when I was at Pacific Fleet, to prevent the purchase of some facilities, which were near our key military facilities.

Senator SHAHEEN. Does the economic reliance on China by some of our American allies create complications for our security strategy, as we are thinking about Chinese investments in our national security sector and what is happening with some of our allies with respect to their reliance on what is happening in the Chinese economy?

Admiral HARRIS. Clearly, Senator, it does.

China is the principal trading partner of many of our friends, allies, and partners, not only in the Indo-Asia-Pacific, but globally.

That is a factor that each country has to make, and it is a factor in how we regard their reliability in certain cases.

I am often asked, well, we have this size of the Chinese military and we have this size of the United States military west of the dateline, but surely, if you added to that all of our capability resident in our friends, allies, and partners, they would match the Chinese, in terms of numbers. You cannot always count on that in every case, because each country will make their independent, sovereign decision on whether to participate in a given operation or whatever.

China's investment in those countries, in those countries' trade relationships with China, is important. It matters, just as it matters to us.

Senator SHAHEEN. Thank you.

General Scaparrotti, in your testimony, you mentioned North Korea's recent actions that suggest that it will do whatever it wants to defy U.N. Security Council resolutions and other norms.

A couple weeks ago, we passed additional sanctions on North Korea here. To what extent do those help or hurt, as we are trying to influence North Korea's actions?

General SCAPARROTTI. Senator, thank you. I appreciate the action that Congress took here in terms of sanctions, because I do believe they have an impact. We know that we have slowed his capability to develop his munitions, missiles, et cetera. He is somewhat cash-strapped. I think additional sanctions, which there are steps we have not taken yet, I think the more that we do, the more pressure we then put on Kim Jong-un.

He has a fairly shaky economy, not a good hand. These sanctions, I think, could create a big problem for him, certainly to someone who puts 30 percent of his economy into his military.

Senator SHAHEEN. Thank you. I am, certainly, a big proponent of our having passed those sanctions.

I would like to say for the record, Mr. Chairman, that one of the things that I am very concerned about, with respect to the sanctions and their enforcement, is the fact that we have still have sitting in the Banking Committee the nomination of Adam Szubin to be the person at the Department of the Treasury who is charged with enforcing those sanctions. He has not yet been officially approved.

I would hope that we could enter that into the record, and I would urge that we see some action on his nomination.

I am out of time, Mr. Chairman, but can I ask one more question?

Senator REED. Yes.

Senator SHAHEEN. Given the recent action by North Korea, have we seen that affect that Chinese thinking or support for North Korea and their willingness to try and encourage them to pull back on their nuclear efforts? For either of you, both of you.

General SCAPARROTTI. As you know, they denounced the actions as well. They stated their concern with them. I think they are in active conversations with us now.

But to this point, we have not seen the steps we would like them to take, in my opinion, and that they could take.

Senator SHAHEEN. Thank you. Thank you both very much. Thank you for your service.

Senator REED. On behalf of Chairman McCain, Senator Graham?

Senator GRAHAM. Thank you, Senator Reed.

General, let's pick up with what you just said.

Are we overly relying on China to discipline and regulate North Korea? Every time somebody mentions North Korea, the first thing out of their mouth is, "Well, we have to have the Chinese help us."

General SCAPARROTTI. Sir, in my opinion, I do not know that we are overly reliant. But, certainly, there are actions—for instance, unilateral actions that this body just took—that we could, certainly, apply as well.

Senator GRAHAM. Could you give me a list of things that we could do that we have not done regarding North Korea? Not right now, but later.

General SCAPARROTTI. Yes, I could.

Senator GRAHAM. Okay. Have you ever found a situation in military history, modern military history, where sanctions stopped a dictator from acquiring weapons?

General SCAPARROTTI. I am not aware. I would have to look at that, Senator, to be honest with you.

Senator GRAHAM. Do you think he cares how his people live?

General SCAPARROTTI. No, he does not.

Senator GRAHAM. Do you think if he had a missile that could reach the United States, he would actually use it against us?

General SCAPARROTTI. I think that his stated purpose is to protect his regime. If he thought his regime was challenged, he states that he would use WMD.

Senator GRAHAM. Is it in our national security interests to allow the North Koreans to develop missile technology that could hit the Homeland?

General SCAPARROTTI. No, sir.

Senator GRAHAM. Would you suggest we use military force, if necessary, to stop that?

General SCAPARROTTI. If military force was necessary, yes, sir. But I think there should be——

Senator GRAHAM. But that should be on the table? But that should be one of the options?

General SCAPARROTTI. Yes, sir.

Senator GRAHAM. Do you agree with that, Admiral?

Admiral HARRIS. I do.

Senator GRAHAM. I just want the committee to understand that we are about to have to cross a road here eventually.

Don't you think that, in the coming few years, we are going to have to make a decision about this?

Does that make sense to you, admiral?

Admiral HARRIS. It does, Senator, in my opinion.

Senator GRAHAM. Say in the next 5 years—I am just picking a date out of thin air here—the United States is going to have to make a tough decision regarding North Korea, whether or not to let them know that if you continue down the missile development road, we will attack that program?

Admiral HARRIS. At some point, it may come to that.

Senator GRAHAM. Do you think it would be good for North Korea to understand that is the consequence of what they are doing?

Admiral HARRIS. I think they do understand it, Senator.

Senator GRAHAM. Do you think they really believe we would use military force to stop their missile program?

Admiral HARRIS. I do not know what they believe.

Senator GRAHAM. Okay.

What about you, General?

General SCAPARROTTI. Sir, I would say the same. Our difficulty is really understanding their——

Senator GRAHAM. Could we make it more clear to them? Is it possible to make it more clear to them?

General SCAPARROTTI. I think it is possible to make it more clear to them.

The second thing I would add, Senator, is that, as you look to the future, I am concerned as well not only about his nuclear missile capabilities, developing cyber capability. He is developing a strategic-launch ballistic missile, and he is developing his air defense capabilities.

All of those things, in about 5 or 6 years, are going to be a more formidable problem.

Senator GRAHAM. In light of the threat that could emerge over the next 5 years from North Korea, if sequestration goes back into effect, does that affect the Army's ability to participate in South Korea effectively?

General SCAPARROTTI. Yes, sir, it does.

Senator GRAHAM. If sequestration goes into full effect, Admiral, what does that do to your ability in your theater?

Admiral HARRIS. I think it hurts me greatly, not only for forces that are forward-deployed, but also follow-on forces. I worry most about those follow-on forces.

Senator GRAHAM. We have a 5 year window here of where North Korea is advancing missile technology and cyber capability. They are becoming more of a threat in the next 5 years, unless something changes. Is that correct? Is that what you are telling the committee? In the next 5 years?

Admiral HARRIS. You said 5 years. I did not.

Senator GRAHAM. Okay. I am just picking 5 years.

Admiral HARRIS. Right.

Senator GRAHAM. Let's just say in the next 5 years, if nothing changes, they are going to be a bigger threat to the United States?

Admiral HARRIS. Clearly. Clearly.

Senator GRAHAM. Is that true of you, General?

General SCAPARROTTI. Yes, I agree.

Senator GRAHAM. We have that dynamic. The Congress' response is to reduce your capabilities in the next 5 years.

Is that what Congress is doing to you?

Admiral HARRIS. If sequestration remains the law of the land, as I testified during my confirmation hearing, I think it will hurt us significantly in the 2021, 2022 time frame.

Senator GRAHAM. From a policymaker point of view, your military advice to us would be to change that construct?

Admiral HARRIS. My military request of you, Senator, would be to end sequestration.

Senator GRAHAM. Yes, because what we are doing is we are having the enemy increasing capability, and we are decreasing your ability to confront the enemy. That is a bad combination.

Admiral HARRIS. It is not just North Korea.

Senator GRAHAM. In your theater.

Admiral HARRIS. In my theater. It is globally.

Senator GRAHAM. What does North Korea want, General? Just survivability?

General SCAPARROTTI. Sir, he wants to protect his regime, the Kim family regime. He wants to establish himself as a recognized nuclear state.

Senator GRAHAM. Okay.

Admiral, would the TPP be helpful, if passed, in your region?

Admiral HARRIS. It would be helpful to pass.

Senator GRAHAM. What if we failed to pass it?

Admiral HARRIS. Then the countries in the region will question the seriousness of our commitment to the rebalance, one. Two, they will turn somewhere else.

Senator GRAHAM. Will that likely be China?

Admiral HARRIS. It will be China.

Senator GRAHAM. Thank you, both, for your extraordinary careers. Thank you, both.

Chairman MCCAIN. [Presiding.] Senator Kaine?

Senator KAINE. Thank you, Mr. Chair.

Thanks to the witnesses. I appreciate this testimony much. Some of us are running back and forth to a Foreign Relations Committee hearing with Secretary Kerry, where many of the same issues are being discussed. We apologize for that.

Admiral Harris, I enjoyed our visit in Halifax at the security conference there in November. One of the issues we talked about I know was raised by Senator King in a question when I was gone, but I think it was raised pretty briefly. He asked you whether you thought the United States should ratify the U.N. Convention on Law of the Sea [UNCLOS], and you said yes. I want to dig into that a little bit more.

A lot of the testimony and discussion this morning has been about the Chinese island-building and other activities in the South China Sea. A lot of the testimony that is going on upstairs with Secretary Kerry is about the same thing.

Admiral, you said a few minutes ago, and I quote, you were asked about China and what our posture is vis-a-vis China's activities. "The goal is international rules and norms." I think that ought to be the goal.

We should be an enforcer of international rules and norms, but I just find it fascinating that as much as we talk about the Chinese activities in the South China Sea that we are against, because they violate international rules and norms, we are the only major power in the world that has not ratified the U.N. Convention on Law of the Sea.

Now, as a practical matter, in terms of our own activities, we act as if that is law. We act in accord with it. But our refusal—and it is a refusal, and it is a refusal by this body, the Senate, to ratify—means that we really lack standing to hold it up against the

actions of anybody else and complain about their failure to follow the requirements of that convention.

This is not only a matter with respect to China in the South China Sea. It is also increasingly becoming an issue with Russia in the Arctic.

If you could, Admiral Harris, instead of just saying, "I support it," talk to me a little bit about, from the security standpoint, the safety of the United States and the mission that we have in the Indo-Asia-Pacific, what would ratification of that U.N. convention do for the United States?

Admiral HARRIS. Thanks, Senator, for the opportunity.

Let me begin in response by saying that I have talked to quite a few folks who are opposed to UNCLOS, the United Nations Commission on Law of the Sea, and I have been informed by them, and I appreciate their position, and I understand the position. I do not agree with it, but I want to acknowledge that there are good reasons—there are reasons to oppose UNCLOS.

My personal opinion is, first and foremost, UNCLOS gives us credibility. It gives us credibility in the international space that we lack today simply because we are not a signatory to UNCLOS.

In a purely military sense, in a projection of power, whether we sign on to UNCLOS or not is not going to affect that. But I think, by not signing onto it, we lose the credibility for the very same thing that we are arguing for, which is following accepted rules and norms in the international arena.

The United States is a beacon, and we are a beacon on a hill. But I think that light is brighter if we sign onto UNCLOS.

We are going to find ourselves in this odd situation here in a few months if—if—the International Tribunal for the Law of the Sea agrees with the Philippines' position with regard to their claim against China's nine-dash line.

We are going to find ourselves supporting that outcome and yet not be a signatory to it. That puts us in an awkward position vis-a-vis the other countries in the region.

You raise Russia. Russia is going to reap the benefits of almost half of the Arctic Circle, because of this theory of extended continental shelf, which is afforded by UNCLOS. On the other hand, we are not going to reap those great benefits, because we are not a signatory to UNCLOS.

I think it affects us in our commerce, in our trade, which is part of that rebalance. It is part of those four big spheres in the rebalance.

Senator KAINE. The absence of ratification does not only deprive us of an argument against activities of others that we would argue are not lawful, but it also deprives us of some positive, upside benefits, for example, with respect to the extended continental shelf argument.

Admiral HARRIS. Right. In my opinion, that is true.

Senator KAINE. I have no further questions. Thank you, Mr. Chair.

Senator REED. [Presiding.] Thank you.

On behalf of Chairman McCain, Senator Cotton, please?

Senator COTTON. Thank you. I apologize for my absence. I have had presiding officer duty on the Senate floor.

General Scaparrotti, that is the equivalent of staff duty for a junior officer at the regiment, if you are not aware.

I want to address something specifically that you stated in your testimony on page 12. "We will continue to work closely with the Republic of Korea to ensure it procures the appropriate types and numbers of critical munitions for the early phases of hostilities. Of note, the potential ban on cluster munitions could have a significant impact on our ability to defend the Republic of Korea."

Could you say a little bit more about that significant impact, General Scaparrotti?

General SCAPARROTTI. Yes, sir. Thank you.

There is presently a policy that in 2019 will go into effect that states, basically, the use of cluster munitions that have a dud rate of greater than 1 percent can no longer be a part of our inventory or be employed. I rely on cluster munitions in a very large way to affect operations, if we go to crisis on the peninsula.

My concern is that we will not be able to replace those cluster munitions with proper munitions, or we will use unitary rounds, which, to have the same effect, I have to fire three to five rounds for each one of those cluster munitions.

My point is that we need to work now to both develop munitions that are acceptable with less than 1 percent dud rate, so that we can replace them in due time. Until we do, I need to be able to use those cluster munitions that I have in storage now in the peninsula in the interim.

Senator COTTON. Is the rationale for this policy a humanitarian concern, based on the nature of cluster munitions?

General SCAPARROTTI. Yes, sir.

Senator COTTON. Do you think it is more humanitarian to preserve these munitions in our arsenal and, hopefully, deter them or any other munitions from ever having to be used, or to remove them from the arsenal and perhaps increase the likelihood of a conflict in which thousands could die?

General SCAPARROTTI. No, I think, particularly in this case, if we were not to use cluster munitions in a crisis on the peninsula, it will result in greater both military and civilian casualties in the long run, because extension of the campaign and also the effect it would have tactically on our forces.

We have done some modeling on this. We have done some testing on it. I am quite confident of that opinion.

Senator COTTON. Have your predecessors relied on these types of munitions going back to the 1950s?

General SCAPARROTTI. We have used cluster munitions in the past. They are being used today. For instance, the Russians have used them in a devastating way in Ukraine.

Senator COTTON. I have noticed.

Admiral Harris, I would like to turn to your testimony on a related topic. Page 20, under the heading "Critical Munitions," you state, "Critical munitions shortfalls are a top priority and concern."

Do you mean to say there that you actually are facing actual shortfalls now in critical munitions?

Admiral HARRIS. That is true, Senator. I have called for increased munitions. There is a shortfall in General Scaparrotti's

arena. Part of that shortfall should be paid for by the Korean ally. That is a subject of discussions that we have with Korea.

Senator COTTON. Not just in Korea, though, but theater-wide, do you face this kind of shortfall?

Admiral HARRIS. I do, but the focus of that part of my written testimony centered on Korea.

Senator COTTON. Okay. In this kind of unclassified setting, is it something that you get into in more detail, about the kind of shortfalls you are facing?

Admiral HARRIS. I prefer not to in this setting, but I would be happy to come back to you in a closed session to talk about it, or come to your office.

Senator COTTON. I understand. We might submit questions for the record. I think it would be the height of irresponsibility for civilian and military leaders in this country not to, at a minimum, have sufficient munitions to fight and, hopefully, deter the wars that we might face. Whatever we might disagree about on longer term, large-ticket budget items, I think we need to have the rounds for our soldiers, sailors, airmen, and marines.

Admiral Harris, I would like to turn to the United States-Philippines alliance, something to which Senator McCain alluded about our Mutual Defense Treaty.

CSIS has recommended that we should consider offering an explicit guarantee to the Philippines that the U.S. will respond under the Mutual Defense Treaty to an attack on the Philippines military in disputed water or territory. Do think this option should be considered?

Admiral HARRIS. I think we should consider it, and we should have a discussion of it in the policy arena. Our obligations under the treaty with the Philippines is pretty clear. Whether we extend that to Second Thomas Shoal, which we do not hold as Philippines' sovereign territory, because we do not take a position on sovereignty, we should have that discussion, I believe.

Senator COTTON. Thank you. I think we should have that discussion as well. I think deterrence works best when deterrence is clear, as with relationships that we have with NATO, Taiwan, and so forth.

My time has expired.

Senator REED. Senator, if you would like to take additional time, because we have until Senator Blumenthal and Senator Sullivan return.

Your timing is exquisite. Thank you, Senator Cotton.

On behalf of Chairman McCain, let me recognize Senator Blumenthal, as he is seated. Thank you.

Senator BLUMENTHAL. Thank you, Mr. Chairman. I appreciate your great work on behalf of our country and the work that you have done, particularly in the theaters that you have covered.

General Scaparrotti, I want to come back to one of the points that was raised by my colleague, Senator Gillibrand, about soft targets, in terms of cyber. How vulnerable do you think those targets are in the area under your command?

General SCAPARROTTI. I think, first of all, I am confident in our military systems, my command and control systems. We red team that. We exercise it. I think we have a good defense. But with

promise cyber is, it is very dynamic. It changes every day, so it is something we have to stay focused on.

I am concerned about, obviously, the civilian cyber network that we are all connected to and has an influence on us militarily as well in the peninsula. That requires ROK-United States work, and it requires ROK work with their civilian counterparts, as well.

Senator BLUMENTHAL. Is there, in your view, any action we could take with respect to North Korea that would deter their invasive action, such as we saw with Sony, such as we have seen and you see in your theater?

General SCAPARROTTI. Yes, I believe there are some actions we could take. I would prefer to provide that to you in either a closed session or a classified document.

Senator BLUMENTHAL. I understand that point. Without speaking to them specifically, have you made recommendations about them? Do you think there is the prospect of imminent action that will widen and increase the effectiveness of what we are doing?

General SCAPARROTTI. Well, in terms of the recommendations, we are actively discussing some operations, in terms of their effectiveness, et cetera. But that is presently just a part of planning.

Senator BLUMENTHAL. Admiral Harris, in terms of the submarine capability of this country, we face no shortage of challenges in the Asia-Pacific. Also, I think many of us have no doubt about the importance of submarines.

I know that my colleague, Senator Ayotte, asked you about the sufficiency of the funding that we have in prospect.

If you were to talk to the American public, how would you put it so that they could understand the importance of our submarine capability in the Asia-Pacific?

General SCAPARROTTI. Senator, I would say that the submarine force has been our principal asymmetric advantage over all the adversaries we faced in the 100 years of the submarine service. It is such an asymmetric advantage that every country who can builds their own submarine force.

Those countries that are building those submarine forces are building some very capable vessels. The Russians, the Chinese lead that effort. The Japanese make a great submarine.

But I am concerned about the Russian and Chinese submarines, as they increase in their capability. The Russian submarine force, in my opinion, did not take a hiatus when the Cold War ended. Now we have the *Dolgorukiy*-class SSBN. Their newest ballistic missile submarine is now in their Far East fleet in the Pacific.

The Chinese are building *Jin*-class SSBNs, which has the capability, if mated with the right missile, to threaten the entire United States.

These are submarines that we have to, we must keep them at risk whenever they are underway and on patrol.

I face a submarine shortage in the Pacific. My requirements are not being met, and that is a function of numbers and global demand. I get all that. But I am also worried about that delta, that shortfall between requirement and presence.

Senator BLUMENTHAL. Thank you.

Thank you both. My time has expired.

Thank you, Mr. Chairman.

Senator REED. Thank you very much.

On behalf of Chairman McCain, Senator Tillis, please?

Senator TILLIS. Thank you, Mr. Chair.

Gentlemen, I am sorry I was not here for a lot of the committee meeting. I have Judiciary and Veterans' Affairs going on at the same time. But thank you for coming before the committee, and thank you and your family for your service, and all the folks that back you up.

I have a question that I hope it has not been asked, but it has to do with the buildup that we see in China.

Admiral, when you and I had a briefing, you made the comment that we have a qualitative advantage, but quantity has a quality of its own. As China continues to expand either its geographic footprint or it continues to build ships and other assets, has there been any modeling or any focus on what it is going to take to continue to operate these things, in terms of fiscal sustainability? Is there anything in your analysis to say, at some point, you have to maintain them, you have to operate them, and with their financial woes? Is there is any thought on that or analysis being done?

Admiral HARRIS. It is a great point, Senator. I have not done that analysis, nor have I seen analysis of China's fiscal sustainability of their military out beyond—pick a date, 2020, 2025 or whatever.

But what I have seen is an increased number of frontline-capable ships, submarines, and aircraft well into the 2020s. I am worried about that.

But I have not looked at their ability to fiscally sustain that force.

Senator TILLIS. Another point that you made that really struck me was the difference when you talk about our qualitative advantage. It is not only our technological and our power projection capability, but it also has to do with important things like survivability.

We are clearly going to have to spend more and sometimes take longer to increase the assets that we have in the area, because of the premium that we place on force protection and survivability.

I just think that is important for people to understand. We would never feel like, given China's priorities today, that we need to match them ship for ship. But we need to figure out when those ratios—I think your concern is that, even with our advantage, the ratios are getting to a point where you expressed some concern. Is that correct?

Admiral HARRIS. It is correct. But I am less concerned about managing the Chinese ship for ship than I am matching them missile for missile. Their missile ranges far exceed ours ship to ship.

Senator TILLIS. That is a very good point.

Admiral HARRIS. But I am pleased that in the 2017 budget, we are going to put some funding against improving our surface-to-surface missile capability.

Senator TILLIS. Now, if I can flip it for a minute, we are viewing China as a kind of emerging threat or growing that in that area of the world. What sort of work can we do to identify instances, particularly as it relates to North Korea, to find partnerships and common interests? What kinds of things, either General

Scaparrotti or Admiral Harris, are we working on that you think could potentially bear fruit?

Admiral HARRIS. I have talked in public before about—there are more things that bind and link China with the United States than separate us. The things that separate us are not insignificant. But let me talk now about those things that we can do together in shared security spaces.

We have a military consultative working group with China where we meet with them on a regular basis to discuss incidents at sea and in the air. We have our rules of behavior working group. We have all of these positive fora where we can engage in discussions with our Chinese counterparts.

They are active globally in positive areas, and we should talk about those and commend them for it. They were involved in the removal of chemical weapons from Syria. They were involved in an evacuation of noncombatants from Yemen. They have been involved in counterpiracy operations off the Horn of Africa now for years. They are on the 22nd iteration of that. They had the largest number of ships off the west coast of Australia in the search for the missing Malaysian airliner.

These are all positive things, and they are doing good things in that international space.

It is just those provocative things that they are doing in Southeast Asia and the South China Sea, which raises tensions and provocations, which causes problems in that area that we have to work with them on.

Senator TILLIS. Thank you.

In closing, two things. I suspect that my colleague here is going to bring up the 425. I would associate myself with any concerns that he may have with that. I will be sticking around for his questions. But I think it is also to continue to communicate back to us how the current budget request helps you, what the priorities should be, communicating those back to our office, and continue, I think, to pound the table to say, at all costs, avoid sequestration.

I look forward to working with you, and thank you for your service.

Senator REED. On behalf of the chairman, Senator Sullivan, please?

Senator SULLIVAN. Thank you, Mr. Chairman. My colleague, Senator Tillis, is wise in terms of his ability to anticipate questions. I did want talk a little bit about some of the force posture.

Admiral Harris, in your testimony, you talked about the tyranny of distance and the importance of forward station forces at high levels of readiness that can rapidly respond to a crisis in terms of a full range of military options. The President, when he announced the rebalance, which I think has broad support here on this committee, bipartisan support, he talked about no force reduction in the Asia-Pacific theater.

Despite that, as you may be aware, and we talked about a little bit yesterday, the Army has decided to essentially get rid of the only airborne brigade combat team in the Asia-Pacific, the 425, also the only Arctic trained and mountain trained. They are, certainly, a brigade combat team that brings a lot of onlies to the fight. Although it is an Army decision, it certainly impacts the two of you.

I know, General Scaparrotti, you view the 425 as an important strategic reserve that can get to Korea within 7 hours. We have a huge strategic lift capability coupled with the 425.

Admiral Harris, you actually own those forces, in terms of operational command.

General Milley, to his credit, has said he is going to take a look at this decision. He has actually put the decision on hold. I was up in Alaska with him. He was on a fact-finding mission just a couple days ago.

If he were to reverse that decision, would you support his decision to do that, if he were? Both of you?

General SCAPARROTTI. Yes, sir. I would. It brings a very specific set of capabilities to the theater, as you just stated. I would just say that General Milley, as you know, with the downsizing of our force, has to make a decision to take that someplace.

With that comment, I would just say my personal opinion is that we need to reconsider the downsizing of the Army at this point, given the challenges that we have around the globe. We have a mismatch between the requirements and our strategy and the force that we have today.

Senator SULLIVAN. I could not agree more with you on that, General.

General Milley, again, to his credit, is looking hard at the tooth-to-tail ratio. If he has to cut anybody, the infantry, armor, tooth element of our forces—but I think your broader point on not drawing down the 425 is a really good one.

Admiral Harris, do you have any thoughts on the?

Admiral HARRIS. Sure, Senator. I will be the first to say it is much more fun to be an insatiable COCOM than it is to be a Service Chief, so I do not envy the position that General Milley or Admiral Richardson or any other Service Chiefs are in, as they have to make these difficult decisions.

But I would say that our Nation has an insatiable desire for security, and rightfully so. I welcome General Milley's decision to reconsider the reduction of the 425 and that great capacity that is resident in Alaska. Now, these are follow-on surge forces that, without them, I do not know where we would be, if we had a major fight on the Korean Peninsula.

Senator SULLIVAN. Thank you for that. I was just out at Fort Polk at the JRTC [Joint Readiness Training Center]. The 425 is actually doing their month-long training out there. To watch close to 1,000 airborne soldiers drop out of the sky in the middle of the night on a forcible entry military exercise shows you what an awesome instrument of American power this unit is. I certainly think it is a strategic mistake for the country to be getting rid of them.

Let me ask one final question, just switching gears here. CSIS, in their report—I know both of you have reviewed it—recommended that we should consider offering an explicit guarantee to the Philippines that the United States will respond under the United States-Philippines Mutual Defense Treaty to an attack on the Philippines military in the disputed waters or territory.

I think, to the President's credit, he did this with regard to one of the islands, with regard to our treaty obligations to Japan recently.

Should this option be considered? What do you think the effect of such a declaration would be? What do you think the effect of the President's previous statement vis-a-vis Japan and our treaty obligations to Japan on one of the islands, what do you think the impact of that was?

Admiral HARRIS. I am trying to decide which question to answer first. I will start backwards.

I think the Secretary of Defense and the President's unequivocal declaration that the Senkaku Islands fall under the protections afforded by the mutual security treaty with Japan had a positive effect on the situation in the East China Sea.

I responded to a question earlier about CSIS's recommendation about the Philippines.

Senator SULLIVAN. I am sorry. I was——

Admiral HARRIS. No, no.

I believe that our obligations to the Philippines under that treaty, which every treaty is different, is clear, and I understand my obligations. I think we should consider it, for sure.

We should consider clarifying our position on the Philippines marines that are on the Second Thomas Shoal. We have maintained as a Nation that Second Thomas Shoal, that territorial maritime dispute there, we do not take a position on that. We are going to have to study this and get into it. But I think it clearly should be considered.

Senator SULLIVAN. Your first statement about the President's statement, you said you thought it was positive. Why? Why do you think so? What did it do?

Admiral HARRIS. It sent a clear signal to China that we would defend the Senkakus just as we would defend Tokyo.

Senator SULLIVAN. Thank you.

Thank you, Mr. Chairman.

Senator REED. Thank you, Senator Sullivan.

Admiral Harris, General Scaparrotti, on behalf of Chairman McCain, thank you for your testimony and your continued service.

Again, on behalf of the chairman, let me adjourn the hearing. Thank you.

[Whereupon, at 11:35 a.m., the hearing was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

NUCLEAR PROLIFERATION

Admiral Harris and General Scaparrotti: According to a recent report in the New York Times, some politicians in South Korea are calling for an indigenous nuclear weapons program due to the recent North Korean nuclear test.

1. SENATOR AYOTTE. What are your assessments of these reports?

ADMIRAL HARRIS. The United States is completely committed to the defense of South Korea and the ROK government is committed to the Non-Proliferation Treaty. While some politicians may have personal views on the matter, these views do not represent the official position of the ROK government, and I have not received any indications during my engagements with ROK leadership that nuclearization is a consideration.

GENERAL SCAPARROTTI. I do not believe these reports represent the senior leaders of the Republic of Korea (ROK) Government. I have not received any indications that nuclearization is under consideration by any of the ROK officials I am in contact with. The United States is completely committed to the defense of South Korea, and the ROK remains committed to the Treaty on Non-Proliferation of Nuclear

Weapons (NPT). President Park has rejected the need for nuclear weapons as recently as 13 January 2016. Additionally, Minister of Defense Han Min-koo rejected the call for developing nuclear weapons, instead calling for a THAAD deployment. This was in response to the remarks by the ROK's Ruling Party Floor Leader regarding nuclear weapons.

2. SENATOR AYOTTE. Do you believe South Korea or any other ally in the region may decide to pursue a nuclear weapons capability in the near future?

ADMIRAL HARRIS. Our allies benefit from the conventional and nuclear deterrence provided by our significant military capabilities, and I have received no indications that our regional allies are dissatisfied with the U.S. commitment to extended deterrence.

General SCAPARROTTI. [Deleted.]

3. SENATOR AYOTTE. Why do you believe the United States nuclear umbrella is not deemed sufficient by those calling for an indigenous nuclear weapons program in South Korea?

ADMIRAL HARRIS. The United States and our alliance with the ROK have effectively deterred major hostilities on the Korean peninsula for over 60 years. Although the U.S. nuclear umbrella is designed to help deter and prevent major hostilities it cannot, nor was it meant to, deter all possible provocations. The calls for an indigenous ROK nuclear weapons program are not unique to recent events. It is understandable that some South Koreans would become increasingly concerned as the DPRK continues to advance its nuclear weapons program, and as a result want to bolster their own sense of national security as a result of the ongoing posture of the DPRK.

GENERAL SCAPARROTTI. [Deleted.]

PACOM

4. SENATOR AYOTTE. Do you have the right number of U.S. Army troops stationed in or rotating through the PACOM area of responsibility?

ADMIRAL HARRIS. USPACOM has adequacy in some areas but faces shortfalls in others, specifically in those capabilities considered "High Demand/Low Density (HD/LD)" throughout the Army. The physical number of U.S. Army troops stationed in, or rotating through, the USPACOM AOR is sufficient for steady state (Phase 0) operations; however, if a contingency occurs we will need to rely on the availability of trained and ready CONUS-based Army forces that can respond quickly to a short- to no-notice crisis and supplement what we have postured in theater. This remains the area of operational risk that is most significant when considered against OPLAN requirements. For certain specific capabilities (see question #5 for examples), our planning has determined that additional presence on the Korean peninsula is required, either via permanent stationing or rotational (deployed) forces. Increased forward presence (permanent basing) in the PACOM AOR would reduce the Army's deployment to dwell ratios and significantly alleviate stress on the force. Additional prepositioning of Army-specific equipment and supplies will also serve as a combat multiplier in both contingency and crisis.

5. SENATOR AYOTTE. Admiral Harris: If not, what more do you need?

ADMIRAL HARRIS. [Deleted.]

PATRIOT MISSILES

6. SENATOR AYOTTE. General Scaparrotti: Do all the Patriot batteries in South Korea feature the "Configuration 3+" upgrade?

GENERAL SCAPARROTTI. No. There are eight (8) United States Patriot batteries stationed in South Korea and all eight are scheduled to receive the Configuration 3+ upgrades in fiscal year 2017. U.S. Patriot batteries in the PACOM region are the priority for fielding Configuration 3+ upgrades.

7. SENATOR AYOTTE. General Scaparrotti: What are the implications of not having this upgrade?

GENERAL SCAPARROTTI. The operational implications of not fielding configuration 3+ upgrades to the U.S. PATRIOT force would be additional risk in our ability to defend the ROK. The 3+ upgrades would improve the lethality of the PATRIOT in defending against the NK BMD threats. Not upgrading current U.S. PATRIOT with configuration 3+ leaves our systems less capable against the advancing capabilities of the NK missile force.

Significant improvements that Configuration 3+ provides the force include:

1) Missile Segment Enhanced (MSE) interceptors. These provide extended range and increased lethality.

2) Radar Digital Processor (RDP) upgrades. This upgrade to the Patriot system radar will replace obsolete components, increase radar reliability, increase long range TBM detection, optimizes the MSE interceptors.

3) PDB 8 software and Modem Man-stations in the command control van. The software updates improve system reliability and maximize the MSE interceptor capability and RDP improvements.

8. SENATOR AYOTTE. General Scaparrotti: Do you recommend that Patriots in South Korea receive the "Configuration 3+" upgrade?

GENERAL SCAPARROTTI. Yes. I recommend that United States Patriots in Korea remain the priority for 2017 fielding of the Configuration 3+ upgrades due to the imminent threat we face.

Patriot is currently the only capability on peninsula that defends against the North Korean ballistic missile threat. In order to maximize the viability of this BMD capability, I recommend that the U.S. Patriot systems assigned to the KTO remain a priority for upgrades with Configuration 3+.

QUESTIONS SUBMITTED BY SENATOR MIKE ROUNDS

PACOM PLATFORM ALLOCATION

9. SENATOR ROUNDS. Admiral Harris and General Scaparrotti, you stated during testimony that there were specific Intelligence, Surveillance and Reconnaissance (ISR) platforms that would aid PACOM's mission that have not been provided to you during the Department of Defense global force allocation process. Please provide detail on the types and numbers of these platforms. We are prepared to receive a classified response if necessary.

ADMIRAL HARRIS. [Deleted.]

GENERAL SCAPARROTTI. [Deleted.]

QUESTIONS SUBMITTED BY SENATOR TED CRUZ

PORT VISITS

10. SENATOR CRUZ. I am concerned about the apparent unwillingness of the Administration to open United States ports to Taiwanese ships during the ROC Navy's transit across the Pacific for their Fleet of Friendship goodwill visit to destinations in Central America. Given that Taiwan and the United States have built a close partnership in maritime security cooperation, is there an alternative procedure DOD can suggest for solving the problem of resupplying their fleet during the transit? Looking beyond this issue, what do you see as next steps that the United States and Taiwan can take to strengthen maritime cooperation?

ADMIRAL HARRIS. [Deleted.]

THAAD IN SOUTH KOREA

11. SENATOR CRUZ. I am pleased to see progress on discussions with South Korea regarding THAAD. This is a crucial step to securing our ally and protecting U.S. troops deployed in the region. As you aware, China wasted no time in waging a propaganda war against this action, going so far as to blackmail South Korea with economic retaliation if THAAD were deployed. I am concerned that this Administration and the Department of Defense have not been vocal enough in countering China's deceptive claims on THAAD's capabilities, nor condemning their harsh treatment of South Korea. Moving forward, what concrete steps will DOD take to address China's behavior regarding THAAD?

ADMIRAL HARRIS. I will continue to engage the American public on this issue, and I will continue to clearly represent United States policy to the international community. While no decisions have yet been made on a deployment of THAAD to the Korean Peninsula, the United States will take the steps necessary to protect our Homeland and our treaty ally. In recent bilateral engagements with China's military, the United States has made clear that American defensive capabilities on the Peninsula are intended solely to defend the Republic of Korea and United States troops and citizens there, against the evolving North Korean threat. This capability includes defense against North Korean ballistic missiles. We have also made clear that THAAD in South Korea is not directed at China and is not intended to affect strategic stability with China.

GENERAL SCAPARROTTI. USFK remains focused on bilateral engagement with the ROK regarding the deployment of THAAD to the Korean Peninsula to enhance our theater ballistic missile defense. Interactions with China are beyond USFK's authorities, and I respectfully defer your question to PACOM.

SOUTH CHINA SEA

12. SENATOR CRUZ. China began aggressively expanding their territorial claims and building illegitimate islands almost two and a half years ago. You indicated during the Armed Services hearing that you believe the United States should carry out freedom of navigation operations in the South China Sea. When did you first provide this professional military advice to the Administration?

ADMIRAL HARRIS. Prior to assuming command of USPACOM, I served as the Commander of U.S. Pacific Fleet from November 2013 to May 2015. During that time, I provided multiple maritime options for the USPACOM Commander including proposed freedom of navigation operations. The USPACOM Commander considered those options in conjunction with other options leveraging all elements of national power. I assumed command of USPACOM in May 2015. Since assuming command, I have provided my professional military advice to the Secretary of Defense concerning all matters relevant to U.S. strategic objectives in the Pacific Command area of operations. This advice included proposed freedom of navigation operations in the South China Sea as well as other operations, activities, and actions designed to convey our strategic message and influence the behavior of Chinese leaders.

13. SENATOR CRUZ. Why did PACOM fail to exert its right to navigational maneuver in the waters surrounding these man-made islands from 2012 until October 2015? In your professional military opinion, has the delayed response made it more difficult to roll back and counter China's narrative that the South China Sea "belongs to China," as a Chinese Vice Admiral declared last September?

ADMIRAL HARRIS. Although USPACOM did not conduct Freedom of Navigation Operations (FONOPS) inside 12NM of disputed South China Sea features in 2013 or 2014, USPACOM continued to conduct a broad range of military operations in the South China Sea, which China claims in its entirety. These operations include numerous monthly FONOPS since 2011 in the South China Sea outside 12NM of disputed features challenging excessive restrictions in Exclusive Economic Zones and airspace, a significant number of reconnaissance flights each month, frequent single and multiple ship patrols as part of our Pacific Presence Operations, and eight FONOPS inside 12NM of disputed South China Sea features in 2011, 2012, 2015, and 2016.

I have always been a proponent of the United States flying, sailing, and operating wherever international law allows and have always supported a robust FONOPS program. The United States has not relinquished the South China Sea to China. We have maintained a consistent, open, and prominent presence that has successfully demonstrated our commitment to our allies and partners, as well as a commitment to security and stability in the region.

SUBMARINES

14. SENATOR CRUZ. Admiral Harris, you expressed concern during the Armed Services hearing that our capacity to deploy submarines is falling well below the requirements of our combatant commanders, specifically noting that submarines provide you with your "principal asymmetric advantage." Please explain the impact of that deficit on future operations in an environment where China continues to increase their A2/AD capabilities and Russia continues their investment in undersea warfare. Given the current size of our submarine fleet and existing shipbuilding projections, are you concerned that the United States could be denied access anywhere in your PACOM area of responsibility in the next decade? If you were not resource or asset constrained, how many attack submarines would you desire in PACOM?

ADMIRAL HARRIS. [Deleted.]

QUESTIONS SUBMITTED BY SENATOR CLAIRE MCCASKILL

US STRATEGY AND REGIONAL ORDER

15. SENATOR MCCASKILL. Admiral Harris, recently, we have been working with the Chinese to increase dialogue and confidence building measures, particularly as they relate to operations on the high seas and in the air. In 2014, the US, China and 25 other maritime nations implemented the Code for Unplanned Encounters at Sea which would monitor maritime behavior. However, despite some progress,

China continues its coercive behavior in maritime disputes through island building in the South China Sea and provocations around the Senkaku Islands in the East China Sea. Are the Chinese deliberately ignoring these confidence building efforts or are they interpreting differently than the US?

ADMIRAL HARRIS. China does not want a war or military conflict with the United States, and they likely view confidence building measures as moderately useful in preventing the inadvertent escalation of maritime encounters. As do we. That said, China's national policy holds that the rocks, shoals, and reefs in the South China Sea are China's. This drives their behavior which includes ignoring international law as it applies to maritime law. Regarding confidence building measures themselves, China does not view confidence building measures as directly relevant to disputes in the East and South China Seas. In these disputes, China's interest is in portraying other countries' operations in Chinese-claimed waters as an infringement on China's rights, which justify a stern response, rather than an encounter between ships exercising equal rights. As a result, I believe China will employ confidence building measures only selectively in the East and South China Seas, and not in situations in which it believes these confidence building measures constrain it from pursuing its sovereignty objectives.

All this said, the Chinese are actively implementing standards and rules of behavior agreed to in the Code for Unplanned Encounters at Sea and the Rules of Behavior for the Safety of Air and Maritime Encounters that were recently signed as bilateral confidence building measures. The United States and China meet three times a year; twice during Military Maritime Consultative Agreement working groups, and once at a plenary session that addresses operational safety concerns, effectiveness of confidence building measures, as well as identifying additional areas for improvement. I believe these confidence building agreements and meetings have been helpful in improving safe maritime encounters.

CHEMICAL BIOLOGICAL STOCKPILE IN NORTH KOREA

16. SENATOR MCCASKILL. General Scaparrotti, in your testimony you commented that North Korea has one of the largest chemical weapons stockpiles and biological weapons research programs in the world. The recent National Commission on the Future of the Army found that the Army is incurring "unacceptable risk" in our response capabilities as they relate to, among other areas, chemical, biological, radiological and nuclear (CBRN) response. Do you agree with the Commission's findings?

GENERAL SCAPARROTTI. Yes. I concur with the Commission's findings. The Army's force structure and response capabilities for CBRN response have been in steady decline over the past decade or longer. The vast majority of our force flow to support our OPLAN, in the area of CBRN response, is heavily dependent on the Reserve component and is projected to arrive in theater much later in the fight than we have requested or require. In dealing with the massive WMD programs within North Korea, we simply lack the capacity to adequately address the scale of this problem set.

17. SENATOR MCCASKILL. General Scaparrotti, do you have sufficient CBRN response capability to meet the requirements on the Korean Peninsula?

GENERAL SCAPARROTTI. No. We do not have sufficient CBRN response capability to meet potential contingencies in the Korean Theater of Operations, due to a lack of sufficient passive and active CBRN Defense capabilities and personnel. We have shortages in the area of collective protection and insufficient capabilities in both aerial and ground based persistent biological sensors/surveillance; The Chemical and Biological Defense Program (CBDP) and the Joint Program Executive Officer—Chemical and Biological Defense (JPEO–CBD) are currently working with us to address these issues. Additionally, we lack CBRN Specialists to manage/respond to a CBRN incident and execute the required post-incident decontamination.

QUESTIONS SUBMITTED BY SENATOR JOE DONNELLY

HYPERSONICS

18. SENATOR DONNELLY. Admiral Harris, do you see investment in hypersonic systems, including conventional prompt strike, as a priority for the future of our ability to deter aggression and defend our interests in the Pacific?

ADMIRAL HARRIS, Yes—investments in hypersonic weapons must be a priority to ensure our ability to deter aggression and defend our interests in the Pacific remain unchallenged. Hypersonic systems are a significant deterrent because they provide a non-nuclear option to provocation and the ability to rapidly project power to deci-

sively defeat aggressors. Furthermore, hypersonic systems increase platform survivability and decrease operational employment risk in Anti-Access/Area Denial environments.

ANTI-ACCESS/AREA DENIAL (A2/AD)

19. SENATOR DONNELLY. Admiral Harris, General Scaparrotti, what advantages would flying 5th generation aircraft provide in the contested airspace over the Korean Peninsula?

ADMIRAL HARRIS. Fifth generation aircraft provide significant advantages in the contested airspace over the Korean Peninsula. Our fifth generation aircraft provide increased survivability and lethality in the A2/AD environment through enhanced systems and increased situational awareness. This said, due to the relative small number of fifth generation fighters that will be brought online by the Air Force, Navy, and Marine Corps in the next five years, I believe it is prudent to migrate some fifth generation capability and weapons to our existing large fourth generation fighter force.

GENERAL SCAPARROTTI. [Deleted.]

20. SENATOR DONNELLY. Admiral Harris, General Scaparrotti, can you speak to the expected survivability of older and less protected airframes, such as Korean F–5s and US A–10s in the initial phases of a war in Korea?

ADMIRAL HARRIS. [Deleted.]

GENERAL SCAPARROTTI. [Deleted.]

21. SENATOR DONNELLY. Admiral Harris, General Scaparrotti, what is your choice to go against threats such as MiG–29s and the plethora of short/long, stationery, transportable, radar and IR threats?

ADMIRAL HARRIS. Fifth generation fighters and hypersonics. The Pacific theater requires fifth generation fighters equipped with the payload and range that provides the air superiority necessary to win decisively against threats such as the MiG–29s. Fifth generation fighters are multi-role tactical aircraft with electronic warfare capabilities that can operate, and endure, in an Anti-Access / Area-Denial (A2/AD) environment. Furthermore, it is essential that Pacific theater fighters are able to communicate with our regional allies such as: Australia, Japan, and South Korea who are procuring F–35 aircraft. Additionally, hypersonics are game changing technologies that enhance our ability to overcome the tyranny of distance, while providing the element of surprise. Hypersonics provide range at sea, and the air launch necessary for the freedom of maneuver of fleet operations. Hypersonics also give us the speed, survivability and time critical strike capability that allows our forces to strike at will.

GENERAL SCAPARROTTI. [Deleted.]

22. SENATOR DONNELLY. Admiral Harris, General Scaparrotti, would we be able to gain air superiority over Korea faster or slower with F–35/22s versus A–10s and even F–16s?

ADMIRAL HARRIS. We enjoy air superiority today against the North Korean Air Force with our F–22s, F–16s, F–15s and F/A–18s. We would gain air superiority faster with F–35/22s versus A–10s and F–16s. The superior technology of our fifth generation aircraft to provide situational awareness and counter-air capability, combined with our high level of pilot proficiency provide significant advantages against even the most advanced aircraft in North Korea, the MiG–29.

GENERAL SCAPARROTTI. [Deleted.]

23. SENATOR DONNELLY. Admiral Harris, what do you see as the top A2/AD challenges we face in the Asia-Pacific region?

ADMIRAL HARRIS. The top three challenges are: (1) gaining and maintaining air and sea superiority, which requires ample submarines, fifth generation aircraft, and critical munitions; (2) defending space assets, to include communications, position, navigation and timing assets, and intelligence, surveillance and reconnaissance (ISR) assets; and, (3) defending our assets through integrated ballistic and cruise missile defense and dispersal operations.

24. SENATOR DONNELLY. Admiral Harris, what particular programs do you see as vital to maintaining our ability to project power in the Asia-Pacific?

ADMIRAL HARRIS. In order to project power in the Asia-Pacific Theater, PACOM forces require capabilities that can operate and survive in an Anti-Access / Area-Denial (A2/AD) environment against China and Russia. Some specific programs re-

quired in the PACOM theater are: regional submarines, Fourth Generation Fighters with upgraded Fifth Generation capabilities and Fifth Generation aircraft; precision munitions (i.e. AIM–9X, AIM–120D, SM–6); Long Range Anti-ship Missile (LRASM); advanced Intelligence, Surveillance, and Recognizance (ISR) communications systems (i.e. Advanced Hawkeye E2D and P–8 Poseidon). Our forces require systems that diminish gaps in surface, air and subsurface areas.

25. SENATOR DONNELLY. Admiral Harris, General Scaparrotti, a key component of Chinese military strategy would be attacks on regional United States land bases, of which five are currently within range of China's land-attack cruise missiles. Given limited resources, what priority should be given to investments in base dispersion, base hardening, enhancing the ability to operate from further away, and enhancing CONUS-based global strike capabilities?

ADMIRAL HARRIS. Regional missile forces continue to evolve in both capability and capacity, resulting in growing levels of risk to forward U.S. Forces. High priority must be given to reducing risk via investments in both active (ballistic and cruise missile defense) and passive defense (distributed operations, hardening and seaport/airport repair) at our existing, planned, and possible expeditionary operating locations. Additionally, high priority must be assigned to the development of the robust distributed logistics support capability that is essential to enabling sustained combat operations from numerous "at risk" U.S. operating locations in the Western Pacific.

GENERAL SCAPARROTTI. As USFK does not focus on Chinese deterrence and defense per the scope of your question, I respectfully defer this request to the key leaders of both Pacific Command and U.S. Strategic Commands. However, USFK is focused on maintaining a level of security for our installations based on current threat assessments. Every installation conducts regular training and vulnerability exercises designed to harden our force protection. Additionally, USFK planners have developed and regularly refine contingency plans to disperse key systems when threatened.

QUESTIONS SUBMITTED BY SENATOR MAZIE K. HIRONO

ASIA-PACIFIC REBALANCE 2025

26. SENATOR HIRONO. Admiral Harris and General Scaparrotti, Last month, the Center for Strategic and International Studies (CSIS) released the Asia-Pacific Rebalance 2025 Report. The SASC heard testimony on its findings earlier this month. An excerpt from the abridged report is as follows: "Although the Obama administration issued a series of speeches and documents on the rebalance, the authors found that there remains no central U.S. Government document that describes the rebalance strategy and its associated elements. In interviews with leaders throughout the Department of Defense, in various U.S. agencies, on Capitol Hill, and across the Asia-Pacific, the study team heard consistent confusion about the rebalance strategy and concern about its implementation." Can you both please provide your thoughts on this? Do you agree that the United States does not have a clear strategy in the Pacific? What can you do in your capacity to support a clear and consistent strategy?

ADMIRAL HARRIS. [Deleted.]

GENERAL SCAPARROTTI. I have a clear understanding behind the intent and objectives of the U.S. Rebalance, and am in regular dialogue with leaders throughout the Department of Defense and elsewhere in the U.S. Government to remain synchronized. Throughout my time in Command, I have regularly offered my best military advice to support the development and implementation of a clear and consistent strategy. The rebalance has played a role in the high priority allocation of resources to United States Forces Korea, as well as increased senior leader attention and time spent in Korea. This has been a key component to our success in Korea.

PACOM

27. SENATOR HIRONO. Admiral Harris, this past week it was announced that the contract award for the Joint Surveillance and Target Attack Radar System (JSTARS) program has been delayed by at least six months. How important is having the JSTARS capability in the Asia-Pacific region and are you concerned about the delays associated with the JSTARS recapitalization program? How does this impact your capabilities in Asia-Pacific?

ADMIRAL HARRIS. It is very important to maintain JSTARS capability in the Indo-Asia-Pacific region, and potential delays in the JSTARS recapitalization concern me.

The primary impact is a potential gap in the Battle Management Command and Control (BMC2)-Intelligence Surveillance and Reconnaissance (ISR) capability to meet key strategic objectives. The current Air Force E–8C retirement plan would further reduce deployable capacity, impacting USPACOM access to forces. Advocacy is essential in retaining sufficient JSTARS capability to meet command requirements in the 2017–2028 timeframe, as there is no other alternative joint capability that provides an integrated BMC2–ISR capability of the E–8C.

EAGLE VISION

28. SENATOR HIRONO. Admiral Harris, in your testimony you make mention of the fact that The Indo-Asia-Pacific is the world's most disaster-prone region. The United States plays a significant role in providing humanitarian assistance to countries that experience these hardships, and PACOM is a critical component of that aid. As the Commander of PACOM, can you please comment on the capabilities that the Eagle Vision system in providing assistance to those countries in need? As you know, the Hawaii Air National Guard is one of the few Air Guard units which hosts the system.

ADMIRAL HARRIS. Eagle Vision provides me with rapid access to broad area and multispectral imagery. It supports aircraft mission planning, mission target area visualization, intelligent assessment, map preparation, and other topographic applications in support of both warfighting or disaster response. Eagle Vision's most notable aspect is its ability to provide near real time imagery aiding command and control.

These capabilities can enhance the ability of responders to focus limited assets on critical areas of need. Eagle Vision can be deployed to any location within the USPACOM AOR by C–130 or C–17. In the USPACOM AOR, Eagle Vision is currently used by the 293rd Combat Communications Squadron, Hawaii Air National Guard, Hickam Air Force Base, Hawaii.

PACOM AOR

29. SENATOR HIRONO. Admiral Harris, given the downward pressures on budgets and other resource restrictions, we obviously can't have everything we need in terms of providing national security capabilities. As far as PACOM is concerned, if additional resources were made available what items would you recommend having in the PACOM AOR?

ADMIRAL HARRIS. I recommend additional investment in the advancement of critical munitions, additional submarines, fourth generation fighters with upgraded fifth generation capabilities and fifth generation fighters, and persistent Intelligence Surveillance Reconnaissance (ISR). Critical munition (i.e. AIM–9X, AIM–120, SM–6) shortages impact USPACOM's ability to conduct high end warfare in an Anti-Access/Area Denial (A2/AD) environment. The restricted ranges of our aging surface-to-surface and air-to-surface munitions now serve as the limiting factor in the effectiveness of advanced U.S. assets. Until munition ranges and effectiveness catch up to the capability of our advanced fighters, ships, and submarines the benefit of having such capable assets will be stymied. Additional submarines would assist in maintaining an asymmetric advantage against the current adversary submarine threats in the region and fifth generation aircraft have the capability that can operate and survive in an A2/AD. Persistent ISR is necessary to bolster Ballistic Missile Defense (BMD). Persistent ISR is necessary to find, fix, and target concealed and mobile missiles in the AOR.

THAAD

30. SENATOR HIRONO. General Scaparrotti, I understand that a Terminal High Altitude Area Defense (THAAD) system is being considered for use against potential North Korean missile threats. Can you talk more about this weapon system and the capabilities that it would bring?

GENERAL SCAPARROTTI. [Deleted.]

JAPAN – KOREA RELATIONS

31. SENATOR HIRONO. General Scaparrotti, how would you currently assess the state of Japan-Korea defense cooperation including in the missile defense arena?

GENERAL SCAPARROTTI. Although there are still lingering historical issues, the prospects for improved defense cooperation between Japan and Korea have increased. The North Korean threat has galvanized our partners on both sides and they have recognized that cooperation in the missile defense arena is paramount to national and regional security. Recent achievements like the 2014 Trilateral Infor-

mation Sharing Arrangement and the U.S. ROK Japan Defense Trilateral Talks will continue to underpin trilateral relationships into the future. As evidence of these improving relations, there have been several Defense Trilateral Talks that have occurred in the wake of this year's DPRK nuclear and missile tests. I am cautiously optimistic both nations will continue to work together and strengthen our unified position against North Korea.

REGIONAL ENERGY SECURITY

32. SENATOR HIRONO. Admiral Harris and General Scaparrotti, as you know, the Asia-Pacific region is home to some of the fastest growing—and industrializing—economies in the world. As these economies grow and industrialize, they need to generate the energy needed to power their more modern economies. However, the Asia-Pacific region does not have substantial fossil fuel resources, and is already facing the challenges presented by air and water pollution, as well as the myriad other consequences of a rapidly changing climate. Furthermore, the distances within the PACOM AOR make energy transport and cost a vulnerability for our forces. The United States military's experiences in Iraq and Afghanistan are well documented examples of these difficulties. In your view, despite the currently record low price of oil, how much of a long-term vulnerability does competition for energy resources present in the region both for the relations between nations there as well as U.S. Forces in the AOR? What sort of pressures does this place on U.S. national security in the region, and what types of initiatives are you undertaking to help alleviate some of these concerns? What have been some of the outcomes of those efforts to date?

ADMIRAL HARRIS. Experts state that growth in trade of energy sources will be particularly large in the Indo-Asia-Pacific region and almost all these energy sources will require movement through international waters. To ensure global growth and to meet our nation's security priorities, international sea lines of communication must remain secure. Security of international sea lanes is a cornerstone of Pacific Command's mission. We employ two broad efforts: enduring presence and working with allies and partners. Enduring presence of Pacific Command's forces enhances international maritime domain awareness and supports the free flow of international trade, to include energy supplies. Pacific Command works with allies and partners to improve and/or develop their domestic maritime security capabilities. In its first year of execution, the Department of Defense Maritime Security Initiative addresses improving partner nation capability and capacity to conduct maritime security and enforce their resource rights within their Exclusive Economic Zone. Additionally, Pacific Command works closely with partners across the Indo-Asia-Pacific region in our strategic approach to ensure energy requirements will never be an operational constraint. Part of Pacific Command's energy security program includes building resiliency in energy systems; increase allied and partner interoperability; and integrating energy security principles into operations, activities, and actions. Outcomes of these efforts include energy security dialogues with allies and partners; inclusion in steady state campaign plan, contingency plans, and exercise scenarios; and informing innovation requirements for basing and operational energy security innovation in order to improve mission assurance and extend operational reach.

GENERAL SCAPARROTTI. The Republic of Korea (ROK) is a small nation without a significant endowment of natural resources. Thus, significant shifts in energy prices or supplies have a potentially significant impact on the ROK economy. However, energy competition does not play a large role in ROK national security decision-making, nor does the ROK appear to feel significant pressure. A robust nuclear energy capability, combined with the security provided by the United States-ROK Alliance, helps to alleviate energy concerns. The United States can further contribute to ROK energy security as a source of oil, particularly with the recent lifting of the United States crude oil export ban.

The ROK does not have international oil or gas pipelines; they rely exclusively on tanker shipments. The ROK is one of the world's top importers of liquefied natural gas (LNG), coal, and crude oil. They are the second largest importer of LNG mostly from the Middle East and Southeast Asia. They are the fourth largest importer of coal which comes from Australia and Southeast Asia. The ROK is the fifth largest importer of crude oil, mostly from the Middle East. The ROK imports about 97% of its total primary energy consumption, and much of it from the Middle East and through Southeast Asia. The security of key sea shipping lanes, especially in the South China Sea (SCS), is paramount. The ROK has a vested interest in maintaining freedom of navigation operations (FONOPS) in the SCS to ensure its energy security.

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

THURSDAY, MARCH 3, 2016

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

POSTURE OF THE DEPARTMENT OF THE AIR FORCE

The committee met, pursuant to notice, at 9:32 a.m. in Room SD–G50, Dirksen Senate Office Building, Senator John McCain (chairman) presiding.

Committee members present: Senators McCain, Inhofe, Sessions, Wicker, Ayotte, Cotton, Rounds, Tillis, Sullivan, Lee, Reed, Nelson, Manchin, Shaheen, Gillibrand, Blumenthal, Donnelly, Hirono, Kaine, King, and Heinrich.

OPENING STATEMENT OF SENATOR JOHN MCCAIN, CHAIRMAN

Chairman MCCAIN. Good morning.

The committee meets today to consider the posture of the Air Force in the context of our review and oversight of the fiscal year 2017 budget request. I welcome our witnesses, Secretary of the Air Force Deborah James and Chief of Staff of the Air Force General Mark Welsh.

General Welsh, I understand this may be your last time you will appear before this committee. Thank you for not cheering. I just want to take this opportunity to express our gratitude to you and your family for 40 years of service and sacrifice in defense of our Nation and wish you every success in your future endeavors.

Twenty-five years of continuous deployments, troubled acquisition programs, and frequent aircraft divestments have left us with the oldest and smallest Air Force in history. The combination of relentless operational tempo and misguided reductions in defense spending in recent years has depleted readiness. Today less than half of the Air Force fighter squadrons are fully combat mission ready, and the Air Force does not anticipate a return to full spectrum readiness for another decade.

Meanwhile, potential adversaries are developing and fielding fifth generation fighters, advanced air defense systems, and sophisticated space, cyber, and electronic warfare capabilities that are rapidly shrinking America's military technological advantage and holding our aircraft at greater risk over greater distances.

Despite temporary relief from the arbitrary spending caps imposed by the Budget Control Act, including through last year's Bipartisan Budget Act, we are still placing an unnecessary and dangerous burden on the backs of our airmen.

Given the obvious needs of our Air Force to restore readiness, recapitalize our combat aircraft fleet, and invest in modernization, the President should have requested a defense budget that reflects the scale and scope of the national security threats we face and the growing demands they impose on our airmen.

Instead, he chose to request the lowest level of defense spending authorized by last year's budget agreement and submit a defense budget that is actually less in real dollars than last year, despite the fact that operational requirements have grown.

That leaves the Air Force $3.4 billion short of what the Air Force said last year it would need for fiscal year 2017. Given this budgetary shortfall, I am concerned the Air Force will not be able to meet the requirements outlined in the 2014 QDR [Quadriennial Defense Review]: to simultaneously defeat an adversary while denying the objectives of another.

The shortfall in this year's budget has forced the Air Force to make a number of painful and undesirable decisions. The most significant was to slow procurement of the F–35A by 45 aircraft over the next five years. This budget-driven decision will likely increase the cost of this already costly aircraft, while exacerbating what defense experts call the modernization bow wave for other critical Air Force programs over the next 10 years, which the Air Force admits it cannot afford at current funding levels. It also means it will take even longer for the Air Force to address the tactical fighter shortfall looming in the next decade.

While we recognize the need for additional resources, this committee will continue to exercise rigorous oversight on Air Force acquisition programs, including the KC–46A tanker program, the presidential aircraft replacement, and the GPS Operational Control System, recently labeled the Air Force's "number one troubled program." If the Air Force, and the Department of Defense more broadly, wish to convince the American people that they need more taxpayer dollars, they must show they are efficiently and wisely using the resources they already have.

In particular, questions persist about the validity of the F–35 program of record quantity. Just consider that 815 F–35A's have been deferred from delivery to the Air Force since 2002, and the Service's latest procurement profile now projects the last F–35A to be delivered in the year 2040. At a certain point, a 38-year acquisition program runs the risk of producing obsolescence, especially when our adversaries are accelerating technological developments to counter the F–35. I look forward to reviewing the Secretary of Defense's decisions on revalidation of the total F–35 program of record quantity, which is due to this committee by May 25th, 2016.

The decision to further delay the F–35 procurement also underscores the folly of the Air Force's plan to retire the A–10 fleet before a proven close air support replacement is fielded. Much fanfare has been made about the Air Force's decision not to divest A–10 aircraft in fiscal year 2018, but beginning in fiscal year 2018, the

Air Force again plans to retire the entire A–10 fleet by 2021 with no replacement.

As the Air Force proceeds with needed modernization, I recognize the need for a new bomber to replace our aging fleet of B–52, B–1, and B–2 aircraft. A long-range, penetrating strike capability is vital to deterring our enemies and reassuring our allies in increasingly contested environments in Europe and the Asia-Pacific.

However, I remain seriously concerned about the acquisition strategy for the B–21 Long Range Strike Bomber, especially the use of a cost-plus contract for the development of this aircraft. I am still not convinced that this program will not repeat the failures of past acquisition programs such as the F–35. I will carefully examine every legislative option to ensure that our Congress can fulfill our dual obligations to the American people, providing our warfighters with the necessary capability to defend this country and to do so at the lowest possible cost and shortest period of time.

Similarly, ending the use of Russian rocket engines remains a top priority for this committee. Department leaders have correctly drawn attention to Russia's growing development of military capabilities to threaten U.S. national security in space. The greatest risk in this regard is that Vladimir Putin continues to hold our national security space launch capability in the palm of his hand through the Department's continued dependence on Russian rocket engines. This is a national security threat in addition to a moral outrage at a time when Russian forces continued to destabilize Ukraine, including nearly 500 attacks in the past week, as General Breedlove, the Commander of European Command, testified on Tuesday.

The Treasury Department remains unwilling to sanction Roscosmos, the Russian parent company of the manufacturer of the RD–180, which is controlled by two sanctioned cronies of Vladimir Putin. This suggests a level of hypocrisy in U.S. sanctions policy that will only make it harder to convince our European allies to renew their own sanctions on Russia this summer.

This committee wants to find a constructive solution to eliminate our dependence on Russian rocket engines immediately without compromising future competition, a goal that Secretary James said was possible in testimony in January.

Finally, I want to express my continuing concern with the Air Force's mismanagement of its remotely piloted aircraft, or RPA [Remotely Piloted Aircraft], enterprise. The Air Force's MQ–1 and MQ–9 community remains undermanned and overworked. Yet, despite the Air Force's stated need for an additional 3,000 RPA manpower authorizations, the Air Force's end strength remains the same as last year.

While the Congress authorized greater retention bonuses for RPA pilots, the Air Force did not provide them out of a sense of "fairness." After years of warnings that RPA pilots and maintainers are leaving in droves, this was a missed opportunity and a damaging mistake. I look forward to your explanation for this action.

Senator Reed?

STATEMENT OF SENATOR JACK REED

Senator REED. Well, thank you very much, Mr. Chairman. Let me join you in welcoming Secretary James and General Welsh to the committee this morning to testify on the plans and programs of the Department of the Air Force for the fiscal year 2017 annual authorization.

We are grateful to both of you for your service to the Nation. Particularly, General Welsh, let me join the chairman in commending you for your outstanding service to the Nation and to the Air Force. You have led with vision and integrity. Thank you very much, sir.

Over the past 15 years, the Air Force personnel and equipment have played a key role in support of our national security goals in Iraq, Afghanistan, and across the globe. Over this time, we have relied heavily on Air Force strike aircraft to take on important ground targets, Air Force manned aircraft and unmanned aerial vehicles to provide intelligence, surveillance, and reconnaissance support, and Air Force tankers and cargo aircraft to support coalition air operations.

Our witnesses this morning face huge challenges as they strive to balance the need to support ongoing operations and sustain readiness with the need to modernize and keep the technological edge in the three domains of air, space, and cyberspace that are so critical to military success. The Air Force has produced a budget that, like all the Services, made tough decisions in a time of constrained resources.

The Air Force is proposing significant force structure changes to ensure that it will have the right size and mix of assets and capabilities to meet strategic needs in a manner consistent with a constrained budget environment. The Air Force proposal includes major shifts in both strategic and tactical aircraft programs, with reductions shared among the Active Duty force, the Air National Guard, and the Air Force Reserve. Here are some examples.

The Air Force is planning to retire the entire A–10 fighter force over the future years defense program as new F–35A Joint Strike Fighter aircraft replace them on a one-for-one basis. While there is a one-for-one replacement for aircraft and squadrons under the Air Force plan, it is not clear that the close air support capability of the modernized force will equal or exceed the close air support capability of the current force, and we would appreciate your thoughts, as the chairman has indicated. The disjunction between the deployment of F–35's and the proposed retirement of the A–10 raises that question, and it is a critical question.

The Air Force continues its plan to eventually retire the entire U–2 fleet and keep the Global Hawk Block 30 remotely piloted aircraft fleet. In the meantime, the Air Force plans to develop and field capabilities for the Global Hawk that are intended to equal or exceed the capability of the U–2, as required by law. Again, I would appreciate an update on this particular issue.

DOD [Department of Defense] has directed the Air Force to reduce the number of Predator and Reaper RPA, remotely piloted aircraft, Combat Air Patrols, CAPs. The previous goal was 65 CAPs. The new goal will be 60 CAPs. This is to allow time for the Air Force personnel and logistics systems to catch up to the demand

for RPA forces. Again, your views on how this is going to be accomplished would be actually critical.

Finally, the Air Force wants to make significant reductions in certain high-demand/low-density forces, such as the AWACS [Airborn Warning and Control System], JSTARS [Joint Surveillance and Target Attack Radar System], and Compass Call fleets before they would be replaced by new systems and capabilities. We need to understand the risks involved and the gaps that would be produced in phasing one system out as other systems come aboard.

Four years ago, Congress created a National Commission on the Structure of the Air Force to make recommendations on policy issues that are directly relevant to these force structure decisions. We look forward to receiving testimony from the Air Force on the progress being made to implement those recommendations.

As the Air Force contemplates major force structure changes, we need to understand what if any effects these changes may have on the Air Force's ability to play a key role in implementing defense strategic guidance calling for a shift to refocus emphasis to the Asia-Pacific region, for one example. Again, I hope our witnesses today can give us this advice.

You have, as the chairman has indicated, significant challenges in maintaining the acquisition programs with the new strike fighter. It is an expensive program, and again, I think it will be a focus not only of our questions but of your efforts over the next several months.

I look forward to your testimony.

Thank you, Mr. Chairman.

Chairman MCCAIN. Thank you.

Welcome, Secretary James.

STATEMENT OF HONORABLE DEBORAH LEE JAMES, SECRETARY OF THE AIR FORCE

Ms. JAMES. Thank you, Mr. Chairman and Ranking Member Reed, and good morning to all the members of the committee.

We have got a lot to talk about this morning, and General Welsh and I are very proud to be here to represent the Air Force.

When we testified before you last year at our posture hearing, we outlined three priorities. Those are taking care of people, balancing readiness of today with the needs of modernization for tomorrow, and making every dollar count. I am here to tell you that those are the same priorities. They have not changed.

But what has changed—and both the chairman and the ranking member have already touched upon this, that what has changed over the last few years are the threats and the challenges that are faced by our Nation around the world. Your Air Force is fully engaged in every region of the world, every mission area across the full spectrum of military operations. Put simply, we have never been busier on such a sustained global basis, at least not in the 35 years that I have been an observer on the scene.

Now, General Welsh, is going to talk to you more about these areas, as well as many others under our priorities representing our budget in just a few minutes. But what I would like to do is use my precious time here before the committee to update on two key areas of interest, and both the ranking and the chairman touched

upon these. Those two areas are the B–21 bomber and space launch.

Our nuclear enterprise is our number one mission priority, and the B–21 will be an essential piece of our Nation's nuclear backbone and, indeed, ditto for the conventional area as well. The B–21 will be a vital global precision attack platform that will give our country a deep, penetrating capability, enabling us to hold targets at risk anywhere on the globe and provide the President with flexible options in addressing future threats. Now that we are beyond the GAO [Government Accountability Office] protest period, we are moving forward with execution.

Now, in terms of the B–21 acquisition, cost control is paramount. We have taken a careful look at lessons learned from previous acquisition programs. We have looked at those that have worked well, and we have looked at those that have not worked well. Experience tells us that there is no one-size-fits-all when it comes to acquisition contracts and strategies because you see we have certainly examples of cost-plus failures, but there also have been cost-plus successes. Likewise, we have had some successes in fixed-price work, but there have also been some noteworthy failures in the fixed-price development world to include the A–12, the Tri-Service standoff attack missile, the C–5, the future combat system, and the C–17.

Now, some of these programs were canceled without delivery of any warfighting capabilities. Some had to sacrifice capability to stay within funding constraints. Some were restructured and significant additional funding was added to complete. Many of them, in addition, resulted in years of litigation.

To help ensure that we now deliver the best value to the American taxpayer with the right quantities, the B–21 approach uses a mix of contract types to support the overall acquisition strategy, and this mix was specifically chosen to capitalize on the advantages of the different contract types while limiting the potential risks for cost growth and/or performance issues. Although the B–21 design incorporates mature and existing technology, we will be integrating those technologies on a never-before-built low-observable bomber. It is these two factors, the never-before-built bomber and the integration aspect that introduces risk into this development program, particularly when we get to integration and test phases.

While some can draw comparisons between the B–21 and the KC–46, there are actually some very important differences. Unlike the KC–46, the B–21 is neither a commercial derivative aircraft, nor is it a commercial derivative design. Unlike the KC–46, the B–21 has no anticipated commercial or foreign sales market to offset any unexpected development costs.

Now, after carefully considering these and other factors, the milestone decision authority determined a cost-plus incentive contract type was best for the development phase of the program.

Now, of course, there have also been cost-plus failures. There is no question about that. F–22, B–2, F–35. They went way over cost and did not produce the performance on time. We are mindful about all of these examples, and we are also very mindful of the

potential for cost growth. We believe that we have taken steps to address this.

First, we had two independent cost estimates completed and we have funded to the higher estimate.

Second, we have and will continue to ensure the requirements remain stable. By the way, the chief requirements control officer is sitting right next to me right now this morning.

Third, we crafted an incentive structure that will reward cost and schedule performance during this cost-plus phase of the contract. We structured the majority of these incentives toward the back end of the cost-plus phase of the program, which means that the contractor will be incentivized to get to production as quickly as possible and as feasible and not drag it out in the cost-plus phase.

Fourth, we are using those mature technologies I referenced to meet requirements and avoid developing key subsystems while also developing the aircraft. By the way, that combination was one of the things—one thing that went wrong in the B–2 program.

Now, all of these factors make us believe that we have a good approach and that we will control costs on this program. Technology maturation and risk reduction was fixed-price. The first five low-rate initial production options are fixed-price, and the remainder of the production will be fixed-price. The majority of this program will be fixed-price, but a portion, of course, is in the cost plus incentive arena.

Let me now take a few moments just to update the committee on some elements with respect to space launch since we were last together in January.

Now, during the January hearing on space launch, I testified that I too was disappointed that ULA [United Launch Alliance] had not been on the GPS–3 [Global Positioning System] competitive launch. I asked my team to go look at options for what could be done about this because, after all, the ELC is taxpayer dollars involved. My general counsel performed that review and coordinated the results with the OSD [Office of the Secretary of Defense] general counsel.

The general counsel found that while certainly it is possible to terminate the contract, it is not probably the most cost-effective approach for the taxpayer. Given that ELC provides infrastructure, which is essential to the launches that are specific to the block buy, we would still have to pay for that service somehow, and we would end up probably paying a lot more than we are paying today. Breaking that contract and allocating those costs to each individual launch in the block buy would likely cost the taxpayer between $700 million and $800 million more.

Now, that was the finding of my general counsel, together with the OSD [Office of the Secretary of Defense] general counsel. But I want to take one more step. I would like to get an independent legal review to see if there is some angle there that we are missing.

Additionally, since the space hearing, the DOD engaged the Department of the Treasury regarding the status of sanctions as they pertain to the recent reorganization of Roscosmos and as the chairman noted the findings there.

Meanwhile, we have continued our plan to transition away from the RD–180 rocket engine reliance, and in addition to the first 2 OTA [Other Transaction Authority] contracts that went to SpaceX and Orbital ATK, on February 29th we awarded two more. These two were to Aerojet Rocketdyne and to ULA. With these actions, we will have obligated all of the fiscal year 2015 funding for rocket propulsion system work in a full and open competitive way per the law.

Finally, we are still concluding and conducting an analysis on various allocation strategies, should allocation become necessary in the future. Preliminary analysis suggests that a transition to a combination of an allocation between the Delta and the Falcon launch service, on the other hand, would add anywhere from $1.5 billion to $5 billion in additional cost, depending on your assumptions and depending on when you would begin such a transition. The basic rule of thumb here is that the sooner a full RD–180 ban might start, the more disruptive it would be to the launch manifest and to the production timeline and the higher the cost would be.

Now, none of this additional cost, whatever that cost ends up being, is currently contained within the Air Force program. As I just said, everything I just said is preliminary in nature. We are still trying to refine the details.

As I wrap up, Mr. Chairman, I want to thank you and this committee for your leadership and support of the Bipartisan Budget Act. As you noted, it does not provide all of the resources that we felt we needed, but it is extremely important because it is much needed stability and predictability.

While we are appreciative of this, we worry about the return of sequestration in fiscal year 2018 and beyond. You all remember in 2013, sequestration compelled us to park jets and delay upgrades and halt training, and that further exacerbated our readiness situation. If we return to it in fiscal year 2018, we will be even worse off. It will touch our people, our modernization efforts, and our readiness. All of the programs that both the ranking and the chairman talked about in the beginning—all of these relate to money. We agree with these points. All of these points relate to money, and getting sequestration lifted permanently would be a fantastic start to helping the entirety of DOD in this arena.

Thank you very much for your support of our Air Force and for our airmen, and we look forward to your questions.

[The prepared statement of Ms. James and General Welsh follows:]

United States Air Force

Presentation

Before the Senate Armed Services Committee

Air Force Posture

Witness Statement of
Honorable Deborah Lee James, Secretary of the Air Force
General Mark A. Welsh III, Chief of Staff of the Air Force

March 3, 2016

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BIOGRAPHY

UNITED STATES AIR FORCE

DEBORAH LEE JAMES

Deborah Lee James is the Secretary of the Air Force, Washington, D.C. She is the 23rd Secretary of the Air Force and is responsible for the affairs of the Department of the Air Force, including the organizing, training, equipping and providing for the welfare of its nearly 664,000 active duty, Guard, Reserve and civilian Airmen and their families. She also oversees the Air Force's annual budget of more than $139 billion.

Ms. James has 30 years of senior homeland and national security experience in the federal government and the private sector. Prior to her current position, Ms. James served as President of Science Applications International Corporation's Technical and Engineering Sector, where she was responsible for 8,700 employees and more than $2 billion in revenue.

For nearly a decade, Ms. James held a variety of positions with SAIC to include Senior Vice President and Director of Homeland Security. From 2000 to 2001, she was Executive Vice President and Chief Operating Officer at Business Executives for National Security, and from 1998 to 2000 she was Vice President of International Operations and Marketing at United Technologies.

During the Clinton Administration, from 1993 to 1998, Ms. James served in the Pentagon as the Assistant Secretary of Defense for Reserve Affairs. In that position, she was the Secretary of Defense's senior advisor on all matters pertaining to the 1.8 million National Guard and Reserve personnel worldwide. In addition to working extensively with Congress, state governors, the business community, military associations, and international officials on National Guard and Reserve component issues, she oversaw a $10 billion budget and supervised a 100-plus-person staff. Prior to her Senate confirmation in 1993, she served as an assistant to the Assistant Secretary of Defense for Legislative Affairs.

From 1983 to 1993, she worked as a professional staff member on the House Armed Services Committee, where she served as a senior advisor to the Military Personnel and Compensation Subcommittee, the NATO Burden Sharing Panel, and the Chairman's Member Services team.

Ms. James earned a Bachelor of Arts degree in comparative area studies from Duke University and a master's degree in international affairs from Columbia University School of International and Public Affairs.

EDUCATION

1979 Bachelor of Arts degree in comparative area studies, Duke University, Durham, N.C.

1981 Master's degree in international affairs, Columbia University, N.Y.

CAREER CHRONOLOGY

1. 1983 - 1993, Professional Staff Member, Armed Services Committee, U.S. House of Representatives, Washington, D.C.
2. 1993 - 1998, Assistant Secretary of Defense for Reserve Affairs, Office of the Secretary of Defense, Washington, D.C.
3. 1999 - 2000, Vice President of International Operations and Marketing, United Technologies, Washington, D.C.
4. 2000 - 2001, Executive Vice President and Chief Operating Officer, Business Executives for National Security, Washington, D.C.
5. 2002 - 2013, Senior Vice President and Director for Homeland Security; Senior Vice President, C4IT Business Unit General Manager; Executive Vice President, Communications and Government Affairs; President, Technical and Engineering Sector, Science Applications International Corporation, McLean, Va.
6. 2013 - present, Secretary of the Air Force, Washington, D.C.

(Current as of June 2015)

BIOGRAPHY

UNITED STATES AIR FORCE

GENERAL MARK A. WELSH III

Gen. Mark A. Welsh III is Chief of Staff of the U.S. Air Force, Washington, D.C. As Chief, he serves as the senior uniformed Air Force officer responsible for the organization, training and equipping of 664,000 active-duty, Guard, Reserve and civilian forces serving in the United States and overseas. As a member of the Joint Chiefs of Staff, the general and other service chiefs function as military advisers to the Secretary of Defense, National Security Council and the President.

General Welsh was born in San Antonio, Texas. He entered the Air Force in June 1976 as a graduate of the U.S. Air Force Academy. He has been assigned to numerous operational, command and staff positions. Prior to his current position, he was Commander, U.S. Air Forces in Europe.

EDUCATION

1976 Bachelor of Science degree, U.S. Air Force Academy, Colorado Springs, Colo.
1984 Squadron Officer School, by correspondence
1986 Air Command and Staff College, by correspondence
1987 Master of Science degree in computer resource management, Webster University
1988 Army Command and General Staff College, Fort Leavenworth, Kan.
1990 Air War College, by correspondence
1993 National War College, Fort Lesley J. McNair, Washington, D.C.
1995 Fellow, Seminar XXI, Massachusetts Institute of Technology, Cambridge
1998 Fellow, National Security Studies Program, Syracuse University and Johns Hopkins University, Syracuse, N.Y.
1999 Fellow, Ukrainian Security Studies, John F. Kennedy School of Government, Harvard University, Cambridge, Mass.
2002 The General Manager Program, Harvard Business School, Harvard University, Cambridge, Mass.
2009 Fellow, Pinnacle Course, National Defense University, Fort Lesley J. McNair, Washington, D.C.
2009 Leadership at the Peak, Center for Creative Leadership, Colorado Springs, Colo.

ASSIGNMENTS

1. August 1976 - July 1977, Student, undergraduate pilot training, Williams Air Force Base, Ariz.
2. July 1977- January 1981, T-37 Instructor Pilot and Class Commander, Williams AFB, Ariz.
3. January 1981 - May 1981, Student, fighter lead-in training, Holloman AFB, N.M.
4. May 1981 - August 1981, Student, A-10 training, Davis-Monthan AFB, Ariz.
5. August 1981 - May 1984, Instructor pilot, Flight Commander and Wing Standardization and Evaluation Flight

Examiner, 78th Tactical Fighter Squadron and 81st Tactical Fighter Wing, Royal Air Force Woodbridge, England
6. May 1984 - June 1987, Commander, Cadet Squadron 5, later, Executive Officer to the Commandant of Cadets, U.S. Air Force Academy, Colorado Springs, Colo.
7. June 1987 - June 1988, Student, Army Command and General Staff College, Fort Leavenworth, Kan.
8. June 1988 - October 1988, Student, F-16 conversion training, Luke AFB, Ariz.
9. October 1988 - July 1992, Operations Officer, 34th Tactical Fighter Squadron, later, Commander, 4th Tactical Fighter Squadron, Hill AFB, Utah
10. July 1992 - June 1993, Student, National War College, Fort Lesley J. McNair, Washington, D.C.
11. June 1993 - June 1995, Chief, Defense and Space Operations Division, Operations Directorate (J3), Joint Staff, the Pentagon, Washington, D.C.
12. June 1995 - April 1997, Commander, 347th Operations Group, Moody AFB, Ga.
13. April 1997 - June 1998, Commander, 8th Fighter Wing, Kunsan Air Base, South Korea
14. June 1998 - June 1999, Commander, College of Aerospace Doctrine, Research and Education, Maxwell AFB, Ala.
15. June 1999 - September 2001, Commandant of Cadets and Commander, 34th Training Wing, U.S. Air Force Academy, Colorado Springs, Colo.
16. September 2001 - April 2003, Director of Plans and Programs, Headquarters U.S. Air Forces in Europe, Ramstein Air Base, Germany
17. April 2003 - June 2005, Director of Global Power Programs, Office of the Assistant Secretary of the Air Force for Acquisition, Headquarters U.S. Air Force, Washington, D.C.
18. June 2005 - June 2007, Deputy Commander, Joint Functional Component Command for Intelligence, Surveillance and Reconnaissance, U.S. Strategic Command, Bolling AFB, Washington, D.C.
19. July 2007 - August 2008, Vice Commander, Air Education and Training Command, Randolph AFB, Texas
20. August 2008 - December 2010, Associate Director of the Central Intelligence Agency for Military Support/Associate Director for Military Affairs, Central Intelligence Agency, Washington, D.C.
21. December 2010 - July 2012, Commander, U.S. Air Forces in Europe; Commander, Air Component Command, Ramstein Air Base, Germany; and Director, Joint Air Power Competency Center, Ramstein Air Base, Germany
22. August 2012 - present, Chief of Staff, Headquarters U.S. Air Force, Washington, D.C.

SUMMARY OF JOINT ASSIGNMENTS

1. June 1993 - June 1995, Chief, Defense and Space Operations Division, Operations Directorate (J3), Joint Staff, the Pentagon, Washington, D.C., as a lieutenant colonel and a colonel
2. June 2005 - June 2007, Deputy Commander, Joint Functional Component Command for Intelligence, Surveillance and Reconnaissance, U.S. Strategic Command, Bolling AFB, Washington, D.C., as a major general
3. August 2008 - December 2010, Associate Director for Military Affairs, Central Intelligence Agency, Washington, D.C., as a major general and a lieutenant general
4. December 2010 - July 2012, Commander, U.S. Air Forces in Europe; Commander, Air Component Command, Ramstein Air Base; and Director, Joint Air Power Competency Center, Ramstein Air Base, Germany, as a general

FLIGHT INFORMATION

Rating: command pilot
Flight hours: more than 3,300
Aircraft flown: F-16, A-10, T-37 and TG-7A

MAJOR AWARDS AND DECORATIONS

Defense Distinguished Service Medal with oak leaf cluster
Distinguished Service Medal with oak leaf cluster

Defense Superior Service Medal with oak leaf cluster
Legion of Merit with oak leaf cluster
Distinguished Flying Cross with oak leaf cluster
Meritorious Service Medal with two oak leaf clusters
Air Medal with oak leaf cluster
Aerial Achievement Medal
Joint Service Commendation Medal
Air Force Commendation Medal

EFFECTIVE DATES OF PROMOTION
Second Lieutenant June 2, 1976
First Lieutenant June 2, 1978
Captain June 2, 1980
Major May 1, 1985
Lieutenant Colonel June 1, 1989
Colonel Feb. 1, 1994
Brigadier General Aug. 1, 2000
Major General Aug. 1, 2003
Lieutenant General Dec. 9, 2008
General Dec. 13, 2010

(Current as of June 2015)

I. INTRODUCTION: THE WORLD'S GREATEST AIR FORCE

The United States Air Force remains the greatest air force on the planet. We are powered by Airmen with more talent and education than ever before. Our inventory, although aging, continues to be more capable across the enterprise than any Nation in the world. Together with our Joint and Coalition partners, Airmen provide around-the-clock *Global Vigilance*, *Global Reach*, and *Global Power* in defense of our Nation and our Allies. They are also vital to the most integrated Joint, Coalition and partner relationships in our history—even better than during the incredible combined success of Operation DESERT STORM 25 years ago.

However, we are experiencing a colossal shift in the geopolitical landscape. For the first time in a generation, adversaries are boldly challenging America's freedom of maneuver in air, space, and cyberspace in contested regions and near our Allies' borders. The era in which the United States could project military power without challenge has ended. Indeed, China has been increasing its military capability and is now expanding its grip on the Pacific. This compounds the risk of miscalculation or conflict in the region. Russia has attempted to annex Crimea and continues its aggression in Ukraine further pressuring the NATO alliance. At the same time, Russian and American Air Forces are both conducting offensive military operations in Syrian airspace. An unpredictable North Korea continues to conduct nuclear and ballistic missiles tests in the face of international condemnation. Syria and Iran have purchased one of the world's most capable air defense systems from their Russian ally while continuing to oppose our interests in the region. These challenges further complicate a relentless fight against Violent Extremist Organizations seeking to exploit weak governance and disrupt world order. The past two years are a reminder that stability is not the natural state of the international environment, that peace is not self-perpetuating, and that entire regions can suddenly descend into anarchy.

While the world's expectations of American airpower were shaped by Operation DESERT STORM, our near-peer adversaries responded to that victory by modernizing their forces with systems specifically designed to neutralize our strengths. Satellite-enabled precision, stealth, cruise missiles, and other military technology that debuted in DESERT STORM are now proliferating around the globe. Quite simply, our adversaries have gained unprecedented ground in just 25 years. In contrast, prior to 1992, the Air Force procured an average of 200 fighter aircraft per year. In the two and a half decades since, curtailed modernization has resulted in the procurement of less than an average of 25 fighters yearly. In short, the technology and capability gaps between America and our adversaries are closing dangerously fast. As our challengers employ increasingly sophisticated, capable, and lethal systems, your Air Force must modernize to deter, deny, and decisively defeat any actor that threatens the homeland and our

national interests. This modern force hinges upon the globe's finest Airmen. We will develop these Airmen through world-class education and training so they are prepared for 21st century combat.

The Fiscal Year 2017 President's Budget aims to build, train, and equip an Air Force capable of responding to today's and tomorrow's threats. It balances capacity, capability, and readiness in support of a resource-informed Service strategy that Takes Care of People, Strikes the Right Balance Between Readiness and Modernization, and Makes Every Dollar Count. *Congressional support for our budget, built in accordance with Air Force and National Strategy, will keep us on a path of disciplined modernization and begin to arrest the erosion of our competitive advantage while continuing to defend America's interests wherever they are challenged.*

II. GLOBAL VIGILANCE, REACH, AND POWER FOR AMERICA... DAILY

Our Joint Force's strength and depth is a coercive instrument deliberately designed to deter, and if necessary, compel, our adversaries. We provide a broad range of military options for America. However, phenomenal Airmen, combined with airpower's speed, agility, and flexibility, often make your Air Force a preferred employment option, for missions ranging from humanitarian relief to armed intervention.

Today, in our 25th consecutive year of combat operations, your Air Force provides the preponderance of combat force against Violent Extremist Organizations (VEOs) in the Middle East, North Africa, and Central Asia. We monitor these organizations with an unblinking eye and a 34,000-person intelligence, surveillance, and reconnaissance (ISR) enterprise dedicated to analyzing and disseminating intelligence to empower decision-makers, identify targets, enable air strikes, and protect Joint and Coalition forces. We have flown more than 30,000 sorties in Iraq and Syria since August 2014, including two-thirds of the 9,000 Coalition airstrikes and more than 90 percent of the 19,000 Coalition tanker sorties. In short, your Air Force is leading the campaign to degrade and destroy VEOs who seek to upend world order.

Additionally, when Russian forces challenged the security and territorial integrity of European nations on its periphery, American Airmen joined our fellow Soldiers, Sailors, and Marines to present a united stand against Russian aggression with our NATO allies. Deployed combat and mobility air forces, ISR and space platforms, and cyberspace assets spearheaded a persistent and dominant air, land, and sea presence in the region. While strengthening this vital alliance, we are also building non-NATO partner capability in support of the European Reassurance Initiative.

At the same time, we are projecting power in the Pacific because China's defense spending continues to grow at double-digit rates as they fund and field an impressive array of modern weapons supporting a more assertive regional strategy. Thus, as China attempts to expand its claims in the South China Sea and coerce our Pacific partners, your Airmen are projecting power through a continuous bomber presence and

by conducting reconnaissance operations in the region. We are preventing strategic surprise, bolstering freedom of maneuver and freedom of navigation for the Joint Force, and protecting the global commons.

Airmen around the globe protect American interests...daily. At U.S. Central Command's Combined Air Operations Center, Airmen lead Joint operations throughout the Middle East, Central Asia, and the Horn of Africa. We have nearly 20,000 Active Duty Airmen stationed in Japan and on the Korean Peninsula, where we fly regularly with our Pacific partners. More than 23,000 Total Force Airmen around the globe conduct operations in and through space and cyberspace supporting the Joint Force. Your Air Force supported 25 space missions, provided GPS, weather, communications, and Space Situational Awareness capabilities while tracking over 23,000 objects orbiting the Earth. We flew nearly 1.7 million hours in 2015, equal to 194 continuous years of flying. We moved nearly a million passengers, the equivalent of every man, woman, and child in Montana. Air Force aerial refuelers passed more than 1.2 billion pounds of fuel and our mobility aircraft airlifted 345,000 tons of cargo and evacuated more than 4,300 Joint patients—all in support of the Joint Force and our international partners.

There is no mission more critical than maintaining our Nation's nuclear capability. Your Airmen operate two of the three legs of our Nation's nuclear triad and continue to improve the nuclear enterprise, providing the deterrence that keeps America's most lethal threats at bay. The responsiveness of the intercontinental ballistic missile (ICBM) and the flexibility of the bomber underwrite U.S. national security. More than 35,000 Airmen protect our national interests and those of our Allies by ensuring a safe, secure, and reliable nuclear deterrent. Your nuclear forces ensure strategic stability with other nuclear powers and provide a wide range of options to deter strategic attacks and respond to emerging threats.

Lastly, programs like *Airmen Powered by Innovation* and *Every Dollar Counts* encourage Airmen to take ownership of day-to-day processes and improve our business practices. These campaigns have yielded billions of dollars in savings and cost avoidance over the last two years. These funds are then reinvested in readiness and modernization.

Today's Airmen—*your* Airmen—are dedicated to innovation, accomplishing their mission, and building a better Air Force for tomorrow... all while supporting and defending our Constitution and protecting our Nation.

III. A CRUCIAL MOMENT: THE DYNAMIC, COMPLEX FUTURE IS UPON US *NOW*

While our Airmen remain heavily engaged around the world, the average age of our aircraft is at an all-time high, and the size of our force and state of our full-spectrum readiness are at or near all-time lows. Non-stop combat since Operation DESERT STORM has placed a substantial burden on our Airmen and

their families while straining the readiness of our personnel and the systems they operate. Without question, the U.S. Air Force America remembers from 1991 is now shockingly smaller and older: 25 years ago, we had 134 combat-coded fighter squadrons while today we have 55; we had 946,000 Total Force military and civilian Airmen while today we have fewer than 660,000. If World War II's B-17 bomber had flown in DESERT STORM, it would have been younger than the B-52, KC-135 and the U-2 are today.

Despite America's inherent strategic advantages, challengers are quickly closing the capability and technology gaps between us. Tools that were unaffordable to most nations during the DESERT STORM era, such as computing power, nuclear weapons, cruise and theater ballistic missiles, and other precision guided munitions have decreased in cost and continue to proliferate. Sophisticated air defense systems are becoming the norm. Furthermore, the declining cost of defense is outpacing the rising cost of offense, challenging your Air Force's ability to present an effective conventional deterrent. The bold and deadly actions taken by revisionist powers in the last five years would have been unimaginable just a decade ago. Deteriorating military strength is an invitation for conflict as rising or unstable powers seek to gain from our eroding competitive advantage.

We must counter these challenges. This requires agile Airmen who we trained and equipped for all possible scenarios with modernized weapons systems and infrastructure where it counts the most. We remain grateful for recent budgetary relief from the Budget Control Act (BCA) caps in Fiscal Years 2016 and 2017, but Fiscal Year 2018 and beyond will return us to inadequate funding to carry out the National Military Strategy. Uncertain future budget toplines make it difficult to deliberately balance investments to modernize, recover readiness, right-size the force, and win today's fight.

Our rapidly shrinking advantage over competitors is the result of their increasing investment in areas designed to blunt our strengths combined with our limited funding and that of our Allies and partners. In fact, our forecasts from five years ago reflected we would have greater funding and fewer combat requirements than we are experiencing today. The combined strategic challenges of international financial turbulence, tenacious violence in the Middle East, and more ambitious great power actors have created a gap between the funding we need and the funding we receive.

Combat requirements since 2001 have created an imbalance due to a necessary focus on operations in relatively permissive environments. However, that does not relieve the Air Force from our obligation to be ready—*always*—to deter or defeat an adversary in a conflict where air superiority must be fought for and maintained instead of expected at the outset. Our Joint Force has enjoyed uninterrupted Air Superiority since April 1953—the result of realistic training and wise investments. Despite our

outstanding aviators, maintaining Air Superiority while flying 20th century aircraft against 21st century enemy air defenses represents a strategic mismatch. The Fiscal Year 2017 PB works to correct this, but in order to ensure we have the capacity for today's operations, we curtailed F-35 procurement and delayed some 4th generation modifications necessary to keep our aging fleet relevant against all foes. The longer we are forced to delay modernization, the more we jeopardize our ability to dominate full-spectrum conflicts. This is a risk we must not take. Although we provide world-class intelligence collection, rapid global mobility, air and space superiority, command and control, and global precision attack, your Air Force's future as a full-spectrum war-fighting force is in danger without substantial modernization.

IV. A CALL TO THE FUTURE

America is an air and space power nation. In an historic anomaly lasting 25 years, the U.S. has possessed unparalleled dominance in the air and in space, enabling a generation of Airmen to focus almost exclusively on operations against non-state threats in permissive air environments. However, dominance is not an American birthright, and air, space, and cyberspace superiority are not American entitlements. Without the ability to achieve national security objectives in air, space, and cyberspace—all under-written by a strong and reliable strategic nuclear deterrent—America's influence will diminish and the Joint Force will be forced to radically change how it goes to war. American lives may needlessly be put in danger and our leaders' options will be limited.

Air forces that fall behind the technology curve fail, and if the Air Force fails, the Joint Force fails. Your Air Force understands balancing combat capability, capacity, and full-spectrum readiness is a strategic imperative. While balancing today's combat requirements, maintaining readiness, and growing our endstrength, we must simultaneously modernize in order to halt the erosion of our technology and capability advantages. In the Fiscal Year 2017 PB, we made difficult choices to best achieve this needed balance. However, to successfully execute the PB, we need your help to ensure we have the appropriate funding, the flexibility to execute the choices we are presenting, and long-term budget stability. We also request the repeal of the BCA which increases the risk to the Nation and our Allies.

In order to create a consistent plan for our Service, we built a Strategic Framework that ensures our budgetary decisions are based on strategy. The core of this framework is a family of strategic documents describing the expected future environment, our Service core missions, how your Air Force will accomplish those missions 20 years from now, and what we need to focus on during this future years defense program (FYDP) to meet that strategy. The PB is built upon this resource-informed Strategic Framework, and it continues our efforts to "right the force" after Fiscal Year 2013's sequestration. This

Strategic Framework and our three priorities of Taking Care of People, Balancing Readiness and Modernization, and Making Every Dollar Count are the foundation of the Fiscal Year 2017 PB.

Our strategy-driven Fiscal Year 2017 PB is consistent with last year's PB and offers the best balance for America's current and future air, space, and cyberspace requirements at Bipartisan Budget Act (BBA)-level funding. It is designed to synchronize budget and acquisition decisions with strategy and provide a continuing advantage against competitors across the range of military operations despite the modernization slowdown necessary to continue current operations. It is credible, affordable, and executable—if we're allowed to execute where we have requested.

Despite a BBA that resulted in a lower-than-expected Fiscal Year 2017 PB, your Air Force will support the Nation's defense strategy and the most urgent Combatant Commander requests. The Fiscal Year 2017 PB is the result of difficult, purposeful, strategy-centric resourcing decisions made to meet obligations set in Defense Strategic Guidance. It aligns with Department of Defense and Air Force 30-year strategies and continues to gain ground in our ability to wage full-spectrum operations. It maximizes the contributions of the Total Force and reinforces investments in nuclear deterrence, space control, and cyberspace operations. It emphasizes global, long-range, and non-permissive capabilities and focuses on unique capabilities the Air Force provides to the Joint Force. It invests in our most precious resource—people—by growing our active force back to 317,000 Airmen by the end of Fiscal Year 2016. As part of our initiative to right-size our force, we also will right-shape our force by maximizing selective retention bonuses to address skilled manning shortages. We will take care of our incredible Airmen and protect our most important family programs by continuing to fully fund Military Tuition Assistance, Sexual Assault Prevention and Response programs, and Airmen Family Readiness Centers.

In addition to right-sizing our Service for today's demands, the Fiscal Year 2017 PB continues our efforts to balance readiness and modernization despite funding challenges. This PB includes a $6.5 billion investment in Nuclear Deterrence Operations, an increase of $4.3 billion over the FYDP compared to the Fiscal Year 2016 PB. This investment includes modernizing nuclear command and control, replacing outdated and unsupportable Minuteman III ICBM equipment, and building the Ground Based Strategic Deterrence program to begin replacing the aging Minuteman III in the late 2020s. We are also developing the Long-Range Standoff weapon which will provide the Joint Force with a survivable air-launched weapon capable of destroying otherwise inaccessible targets in any zone of conflict.

Additionally, we intend to delay the A-10 and EC-130 retirements to maintain capacity in support of today's operations. We will fund flying hours to their maximum executable level, invest in weapon system sustainment, and ensure combat exercises like Red Flag and Green Flag remain strong. We will

continue our top three recapitalization programs, though we have made the difficult decision to slow F-35 procurement. We will resource strategic assets such as the Space-Based Infrared System (SBIRS) to detect global missile launches. We will also invest in preferred munitions capacity and the Combat Rescue Helicopter recapitalization program while continuing to grow from 26 Cyber Mission Force Teams to 39. Lastly, we will fund improvements to Global Integrated ISR with a focus on the Remotely Piloted Aircraft (RPA) enterprise. These include increased benefits for aircrew, a program to train enlisted operators to fly the RQ-4 Global Hawk, a basing study to provide options to support flying RPAs on a schedule more conducive to steady-state operations, and other recommendations from our Culture and Process Improvement Program, a bottom-up review of issues impacting our RPA force.

The BBA has forced us to make sacrifices as we balance readiness and modernization. In this case, we must delay five F-35s and slow modernization of our 4th-generation aircraft. With increased funding, we would invest in these capabilities now to ensure they do not compete for funding with critical nuclear and space requirements in the out-years. Just as importantly, we must delay investment in aging critical infrastructure such as ranges, airfields, and taxiways, an action we have repeated annually since Fiscal Year 2013 sequestration. Every year we delay these repairs, operations are affected and the eventual cost of improvements grows substantially.

Importantly, this budget must mark the return of a committed investment to *Global Vigilance, Global Reach,* and *Global Power* for America. A return to BCA-level funding in Fiscal Year 2018 will undermine our readiness and modernization; it will require your Air Force to depart from a long-term, Strategic Framework in favor of a course of action that funds only things absolutely required in the short-term. It will abet our challengers' efforts to further erode our capability and technology advantages, and we will be forced to slow our modernization programs, delaying our planned readiness recovery. A return to BCA-level funding will limit our space, cyberspace, and nuclear improvements and further degrade Air Force-wide infrastructure and installation support. It is critical that the looming threat of sequestration ends. BCA-mandated across-the-board defense cuts will act as a straitjacket, preventing the department from reallocating funds to the most critical capabilities and investments at the very moment such flexibility is paramount. This will result in significant strategic risk and greater cost over the long run. Fiscal Year 2017 represents a critical point when the Air Force can continue to "right the force" in terms of size, capacity, readiness, and present/future capabilities. Alternatively, Fiscal Year 2017 could simply represent temporary relief before inadequate future BCA-level funding thwarts modernization and readiness initiatives. Make no mistake, BCA-level funding will result in longer timelines to meet Joint Force objectives; this could result in increased risk to mission and service members.

Our Nation requires bold leadership from the Congress. Your Air Force needs the authority and flexibility to execute our strategy through Congressional support of the Fiscal Year 2017 PB. We appreciate the BCA relief provided by the 2015 BBA, but responsibly sustaining and investing in U.S. security requires long-term budget stability and the repeal of BCA. Critically, even at BBA funding levels, the overall capability gap between us and our competitors will continue to narrow; we can preserve the advantages in some areas, but determined adversaries will close gaps in others. Accordingly, we are prioritizing the Joint Force requirements our Nation needs the most.

V. CONCLUSION: A CALL TO ACTION

Today's national security challenges come from a combination of strong states that are challenging world order, weak states that cannot preserve order, and poorly governed spaces that provide sanctuary to extremists who seek to destabilize the globe. The world needs a strong American Joint Force, and the Air Force is its first and most agile responder in times of crisis, contingency, and conflict. The Joint Force depends upon Air Force capabilities and requires airpower at the beginning, the middle, and the end of every Joint operation. As our Army and Marine Corps get smaller, they do not want less airlift; they want it to be more responsive. As Combatant Commanders look toward battlefields of the future, they do not want less ISR; they need *more* persistent, capable, and agile ISR. Should our Nation find itself in another conflict requiring boots on the ground, we have the responsibility to assure air superiority so American Soldiers and Marines may keep their eyes on their enemies on the ground rather than concern themselves with enemy airpower overhead. America's Air Force must be able to disrupt, degrade, or destroy any target in the world, quickly and precisely, with conventional or nuclear weapons, to deter and win our Nation's wars. Undoubtedly, decisive air, space, and cyberspace power—and the ability to command and control these forces—have become the oxygen the Joint Force breathes and are fundamental to American security and Joint operations. Whether in support of global counter-terror operations or great power deterrence, your Air Force remains constantly committed, as we have without respite for the past 25 years.

In the face of a dynamic, complex, and unpredictable future, your Airmen provide a strategic advantage over America's competitors. They are educated, innovative, and motivated. Their ability to see threats, reach threats, and strike threats is an effective but shrinking conventional deterrent against America's enemies. These courageous Airmen, when properly trained, effectively equipped, and instilled with the trust of their leadership, will ensure the Air Force continues to overmatch opponents in Joint and Coalition operations and defend the United States from any who would do us harm.

The Fiscal Year 2017 President's Budget—and the flexibility to execute it as we have recommended—is an investment in the Air Force our Nation needs. The global developments of the last five years have reminded us that America's Air Force must have the capability to engage anytime, anywhere, and across the full spectrum of conflict all while providing a reliable strategic nuclear deterrent. America expects it, Combatant Commanders require it, and with your support, our Airmen will deliver it.

Chairman MCCAIN. General Welsh?

STATEMENT OF GENERAL MARK A. WELSH III, USAF, CHIEF OF STAFF OF THE AIR FORCE

General WELSH. Thank you, Mr. Chairman and Ranking Member Reed, and distinguished members of the committee. It is always a privilege to testify before you and to join Secretary James in representing America's airmen.

As you heard from the Secretary, our top priorities remain taking care of people, balancing readiness and modernization, and making every dollar count. While we keep one eye on those priorities, we keep the other on our very interesting world. Along with you, we have been watching China flex its muscles in the South China Sea. We have watched as they dramatically increased the level of technical capability in their air force and expanded the scope and complexity of their operations in both space and cyberspace.

After wreaking havoc in Georgia, Crimea, and the Ukraine, we see a resurgent Russia now aggressively supporting the Assad regime in the skies over Syria and promise to modernize its legacy nuclear forces.

We noticed Iran's broad overt and covert influence on unrest in the Middle East and its general malign influence inside and outside the region.

We watched with interest as North Korea conducted an illegal nuclear test and subsequent rocket launch, perhaps signal events for a ballistic missile program yet to come.

We continue to watch ISIS [Islamic State of Iraq and Syria] walk a trail of terror that now stretches well beyond Iraq and Syria.

To confront these challenges and to ensure a fighting force that is able to overcome them all, our fiscal year 2017 budget request attempts to balance the size of our force with the required readiness and necessary modernization of that force.

In terms of people, our fiscal year 2017 budget request modestly grows the total force and adds airmen in a number of critical career fields like ISR [Intelligence, Surveillance and Reconnaissance], cyber, maintenance, and battlefield airmen. We are asking to increase Active Duty end strength from roughly 311,000 to 317,000 by the end of fiscal year 2017. Given our current operational tempo, it is imperative that we at least get to this number this year.

If mission demands require additional growth in 2017, Secretary James is prepared to use her existing authorities to grow modestly beyond 317,000 provided we are able to attract the right talent for the positions we need. That would, of course, require congressional support of a reprogramming action to fund the additional manpower.

In the Air Force, total force integration is alive and well. We continue to shift mission sets from the Active to Reserve components where appropriate and to integrate organizations when and where it makes sense. We have three Active Duty officers today commanding Reserve component wings, and this summer an Air Force Reserve officer will take over—will take command—excuse me—of an Active Duty fighter wing and an Air National Guard officer will

take command of an Active Duty mobility wing. We will also test a fully integrated air refueling wing beginning in fiscal year 2017.

For fiscal year 2017, we have requested a 1.6 percent pay raise for both military and civilian airmen and targeted pay and retention bonuses for a variety of career fields, including RPA crews. Chairman, thanks to your help and the help of this committee, RPA and manned pilot incentives are finally at the same level, but we cannot stop there. This year, we chose to give our RPA pilots a $25,000 per year retention bonus and not the full $35,000 you authorized. We did that to make sure that the bonus for RPA pilots was commensurate with that of other critically manned pilot categories. We have some that are even in more crisis than RPAs at this point in time. We will intend to seek legislation this year to increase all of our aviator retention pay for manned and unmanned platforms to $35,000 per year. We will ensure you have all the details you need to assess that proposal.

Finally, this year's budget expands the Sexual Assault Prevention and Response program, fully funds child care facilities, boosts educational benefits, and supports important infrastructure programs that benefit both airmen and their families.

Readiness remains both an imperative and a struggle for us. Less than half of our combat units are fully prepared, as you heard, for a high-tech fight against a capable and well-equipped force. This budget funds flying hours to the maximum executable level, invests fully in the corresponding sustainment accounts, and ensures our top end combat exercises like Red Flag and Green Flag remain vibrant.

In consultation with our combatant commanders, we made some adjustments to address the global threats that I mentioned previously. We did rephase the A–10 and EC–130 divestitures. Both fleets are fully funded in fiscal year 2017. Keeping them beyond that is simply a manpower issue. We do not have enough people in the Air Force to continue to operate all the equipment we have today and to stand up a new fleet of F–35's. With additional manpower and funding to cover the activity, we could certainly do that, and I would be a very happy Air Chief if we got that increase. But today we do not have the manpower to do both.

Our budget request also adds 24 MQ–9 Reapers and increases our munitions buy to meet operational demands.

Our aircraft inventory is the oldest it has ever been, as the chairman started off mentioning, and our adversaries are closing the technology gap. We simply must modernize. This budget request includes ongoing investments in nuclear deterrence, space, and cyberspace. We are pressing ahead with legacy platform replacements, the F–35, KC–46, B–21, Combat Rescue Helicopter, and the JSTARS. Due to limited trade space, we had to defer five F–35's from our fiscal year 2017 program, delayed some upgrades to legacy weapon systems, and will continue to live with a dramatically reduced infrastructure improvement program.

To maximize our buying power, we will streamline energy usage, we will employ airmen's cost-saving ideas by the hundreds, and we will march toward audit readiness by the end of this fiscal year.

In closing, I would like to offer my thanks to each one of you for dedicating your time and your attention to our Military Services,

not just our Air Force, and the remarkable men and women who give them all life.

We look forward to your questions.

Chairman MCCAIN. Well, thank you very much.

You know, the only problem, General, with your statement about the A–10 is you have no replacement for it, and it is in combat and in operation in Iraq and Syria as we speak. You want to retire it, but you have no plans, according to what has been submitted to this committee, as to the F–35's that will replace it. In fact, you have reduced the number of F–35's that we are requesting. It does not match up, General.

General JAMES. Chairman, the mission capability of the A–10 will not be replaced by the F–35.

Chairman MCCAIN. We have a conflict going on in Iraq and Syria now, which the A–10 is in combat, most notable when they destroyed the fuel trucks, and you have nothing to replace it with.

General JAMES. Sir, we would do the work that the A–10 is doing today with the F–16 and the F–15E predominantly.

Chairman MCCAIN. Then why are you not doing it now?

General JAMES. We are, sir. They are flying many air sorties.

Chairman MCCAIN. You know, that again flies in the face of reality. The A–10's are flying the most effective and least costly missions in Iraq and Syria.

General JAMES. Chairman, we would love to keep it all. The fact is that the Budget Control Act——

Chairman MCCAIN. But you have nothing to replace it with, General. You have nothing to replace it with. Otherwise, you would be using the F–15's and the F–16's, which you have plenty of. But you are using the A–10 because it is the most effective weapon system. This is really unfortunately disingenuous. I mean, you have the options of using the F–15 and the F–16 right now. You are not. You are using the A–10.

General JAMES. Sir, we are using them both heavily. We are using the B–1 heavily.

Chairman MCCAIN. Every Air Force pilot that I know will tell you the most effective close air support system is the A–10.

General JAMES. Senator, we have X amount of people and X amount of dollars.

Chairman MCCAIN. You have X amount of missions, and the A–10 is carrying out those missions, General.

General JAMES. No, sir.

Chairman MCCAIN. That is amazing.

General JAMES. Senator, those are not the facts.

Chairman MCCAIN. Yes, they are the facts, General.

General JAMES. We can give you the numbers.

Chairman MCCAIN. They are the facts. The facts are on the ground in the destruction of the enemy by the A–10 aircraft. If you were not using the A–10, as you said, if you think the F–15 and the F–16 can do the job, then you would be using them instead of the A–10.

You know, General, I have had a little military experience myself, including in close air support. For you to sit there and tell me that we could be using the F–16 and the F–15 when we are not and your plans are to use the F–35 at 10 times the cost eventually,

it flies in the face of not just my experience but the experienced pilots that I know, the U.S. Air Force pilots that I am in constant communication with.

General JAMES. Senator, my last comment. I do not want to argue this with you.

Chairman MCCAIN. You are arguing. You are arguing facts.

General JAMES. Senator, I will give you the facts of how many targets have been struck by which kind of platforms in Iraq and Syria over the last year.

Chairman MCCAIN. Yes, and a significant number of them have been done by the A–10. Is that true or false?

General JAMES. No. It is true.

Chairman MCCAIN. It is true? Then why would you want to retire the least expensive, most accurate close air support system?

General JAMES. I do not want to retire it, Senator. But the Air Force has to get bigger to do all this.

Chairman MCCAIN. But you have not got a replacement for it, General. For you to sit here and say that you do absolutely flies in the face of the facts. Enough said, General. Okay?

General JAMES. Okay, Chairman.

Chairman MCCAIN. You know, it is really embarrassing to hear you say something like that. When I talk to the people who are doing the flying, who are doing the combat, who say that the A–10 is by far the best close air support system we have—it is embarrassing.

General JAMES. We all talk to them, Chairman. Thank you.

Chairman MCCAIN. Secretary James, on the rocket engine, which you chose to highlight, are you aware that there are members of—two members at least of Roscosmos who are on our sanctions list? You are aware of that.

Ms. JAMES. Yes.

Chairman MCCAIN. We have now two sanctioned cronies of Vladimir Putin who are getting X millions of dollars of taxpayers' money. Right?

Ms. JAMES. I do not know that to be true or false.

Chairman MCCAIN. Well, they are being paid. Are they being paid?

Ms. JAMES. I do not know.

Chairman MCCAIN. Is Roscosmos being paid? Do you know that?

Ms. JAMES. I got the decision from the Treasury Department vis-a-vis the sanctions——

Chairman MCCAIN. Do you know that Roscosmos is the Russian parent company of the manufacturer of the RD–180? Do you know that?

Ms. JAMES. I do not have access to who makes that money.

Chairman MCCAIN. It is public knowledge, Secretary James. It is public knowledge that the company is Roscosmos that is the company that is selling the—is a parent company of the manufacturer of the RD–180. You did not know that?

Ms. JAMES. Chairman, I would be happy to get the Treasury Department to come brief you.

Chairman MCCAIN. I am not asking for the Treasury Department. I am asking you if you know what is public knowledge. Do you know that it is public knowledge that Roscosmos is the parent

company of the manufacturer of the RD–180? Do you know that or not?

Ms. JAMES. I have not studied it in detail, but if you say so, I believe you.

Chairman MCCAIN. I am asking you if you know it not. This is really—you know, I have been to a lot of hearings in my time, but I have not quite seen one like this. I am asking you a question. Do you know that the Russian parent company of the manufacturer of the RD–180 is Roscosmos, of which two sanctioned cronies of Vladimir Putin control it? Do you or do you not know that?

Ms. JAMES. I accept your word. I know it.

Chairman MCCAIN. Thank you. I am astonished that you did not know it. I mean, after all, this is a pretty big deal that we have been talking about, and you chose to bring that up in this hearing, and you do not know that Roscosmos is the Russian parent company of the manufacturer of this rocket engine, which is controlled by two sanctioned cronies of Vladimir Putin. You did not know that?

Ms. JAMES. I brought up that the Treasury Department did not put the Roscosmos on the sanctions list, and you brought that up too, Chairman.

Chairman MCCAIN. That was not my question. My question was whether you knew that or not.

Ms. JAMES. Prior to you telling me this today, that individual aspect, no. But I accept your word and I know it now.

Chairman MCCAIN. I am not asking you to take my word. I am astonished that you did not know it.

Senator Reed?

Senator REED. Thank you very much, Mr. Chairman.

One of the points that you both made and I made in my statement was the decision by Secretary Carter to lower the number of combat air patrols for the remotely piloted aircraft from 60 to 65. My sense is that is a reflection of the stress on the whole enterprise, the number of pilots, et cetera. This is an asset that every commander needs more not less, as we hear every time we go overseas. Two questions follow from that.

One is that in order to aid the enterprise, the training of the pilots, selection of pilots, who will fly these aircraft so we can get back up to the CAP levels of 65 or beyond, is there any legislative initiative that you need going forward, General Welsh and Secretary James? Do you want to start, General?

General JAMES. Senator, I do not believe there are. We are in the process now of doubling our production and our training pipeline between now and the end of fiscal year 2017. That is biggest and most significant first step. We have never trained more than 180 a year. We will train 334 this year and 384 beginning next year. That is the beginning of the recovery in that enterprise and normalizing a battle written for the entire community. But I think we are on track to get that done.

Senator REED. Secretary James?

Ms. JAMES. I would concur. Not this year, but as we go forward, as you heard, we do want to modestly build up our end strength. There may be things coming down the pike next year.

Senator REED. General Welsh, we had a lively discussion in my office about—first, let me commend you on opening up the senior enlisted ranks to access to operators for Global Hawk, which you have done, which I think makes sense, and you can tap into some great expertise. The question, what about the Predator and Reaper communities? Those are still restricted to trained pilots and non-commissioned officers. Is there any plan to go look at the enlisted ranks to fill those slots?

General JAMES. Initially we want to get that community well first, complete our "get well" plan, get it healthy. It was not a problem moving—availability of officers who are enlisted to move through the pipeline. The problem was the training pipeline itself. We need to get that healthy first. We chose the Global Hawk community to initiate the enlisted RPA operator program because it is a smaller community. It can be more controlled initially. We can learn the lessons we need to learn as we do that, and then we will decide where we go from there.

Senator REED. Let me switch to another issue that I mentioned in my opening statement, and that is that we have some high-demand/low-density aircraft you are well aware of, JSTARS, AWACS, Compass Call. The plan again, because of pressure, is to retire these aircraft, and we are sort of in a similar dilemma as the A–10. We do not have an obvious replacement. Can you comment on that, General?

General JAMES. The strategy for those aircraft, JSTARS, EC–130H, Compass Call, et cetera, is to try and modernize within our top line because we do not think there is more money coming. To do that, we have to take money out of our top line some way, and the way we have approached this is to look at downsizing to certain numbers of aircraft in those fleets to pay for the recapitalization program and just replace it on the fly. It means that short-term you have less capability in that mission area to support the combatant commanders with, but if we do not do this, long term we will have no capability in that mission area to support the combatant commanders.

Senator REED. You are going to use the internal budget issues to generate more improvements on existing aircraft or even build new aircraft.

General JAMES. That is our intent, sir. We can do that with any capability. It is not the ideal way to do it because you have to give up capability to get future capability. But we just do not think there is more money coming to support a development program.

Senator REED. Secretary James, one of the issues that is always attendant upon development of a new aircraft is not just the acquisition costs but the life cycle costs. Have you been looking at the B–21 in terms of life cycle costs? If you have, can you give an indication of how you are prepared to minimize those costs, since we are starting on this process right now with design and initial sort of production?

Ms. JAMES. I would like to, if I may, come back for the record or come back in a briefing format to give you some information on that, Senator Reed.

Senator REED. Thank you very much.

Senator REED. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Inhofe?

Senator INHOFE. Thank you, Mr. Chairman.

First of all, let me just say to the two of you I have been on this committee for 20 years, and I was on the House Armed Services Committee before that. I have found that the two of you are the most accessible of any Secretary and Chief that we have had in the past. I really do appreciate it. You have come out when we have called. I remember on very short notice, General Welsh calling you and asking if you would meet me in Fort Smith, Arkansas to look at a problem with the 188th wing there, and you were there. It was a little intimidating for me because I had to park my little Harmon Rocket next to your C–20. But, nonetheless, we enjoyed that visit, all on short notice. I really do appreciate it.

I want to use my time differently than the rest of them because it is very disturbing to me, when I watch the presidential debates and I hear people talking, nobody knows the level of threat that we are facing in this Nation right now. You know. Both of you know. But the people do not know that. That is what we should be talking about in terms of the resources that we have.

When I read the statement that was made by our former Secretary of Defense, Chuck Hagel, when he said, quote, American dominance on the seas, in the skies, and in space can no longer be taken for granted, you know people back in Oklahoma, when we say that, maybe it is not believable. But it is true. I think in your statement that you submitted, you said in different words the same thing. The era in which the United States could project military power without challenge has ended. I agree with that.

The thing that that translates into is the other statement that you made the deteriorating military strength is an invitation for conflict. We all remember when we were looking at the big bomb and the threats that we were facing. Our feeling was at that time you have to have it, but you never want to use it. The best way not to use it is to have it. You have got to have that force.

One of the things that was stated in your message when you said, quote, your Air Force will support the most urgent combatant commander request. When I read that, that means to me that we cannot meet all of the combatant commander requests, but just the most urgent ones. Do you want to define what an urgent one is, either one of you?

General JAMES. Senator, the decision on which combatant commander's request we actually prioritize is actually made through a joint process. The ultimate decision belongs to the Secretary of Defense. There is a debate that goes on or a requirement that is presented from a combatant commander to the Joint Staff. The services engage in the discussion. The Joint Chiefs engage, and the Secretary of Defense makes a decision based on what he sees to be the greatest priority.

Senator INHOFE. Yes, but if we had the resources, would you not say that you would be meeting—attempting to meet most all of the requests that they have, not just the urgent ones.

General JAMES. Senator, all the services would like to meet all——

Senator INHOFE. You were at Hill, I think, were you not, when you were flying during Desert Storm I think it was, probably F–16's I would guess.

At that time, was the threat to the United States as great as it is today?

General JAMES. Sir, I think the greatest existential threat, the nuclear threat that Russia holds, was the same, but other than that, no.

Senator INHOFE. Well, James Clapper and every witness we have had before this committee has said that we are facing the greatest threats today that we have ever faced. Some of them say not just in the last 40 years but in the history of this country. I believe that is true. That is what we need to be talking about.

You mentioned a minute ago that we are trying to go up from 310,000 to 317,000 Active Air Force. Is that correct?

Ms. JAMES. Yes. The Chief did mention that, Senator, and it is—actually I think it is 311,000 to 317,000 for the Active. You will recall about a year or so ago, we also increased our Guard and Reserve to about 3,000 additional. We are modestly now upsizing Active, Guard, and Reserve. As the Chief was saying, we think, given world demands and our reading of the situation, that there may be cause for even more provided that we can get the right talent.

Senator INHOFE. Yes. That is really, Madam Secretary, the point I am trying to make here. At that time, if we had 300,000 or so Guard—or currently Guard, we would be talking about a total force, including the Reserve component, of around 600,000. I mean, round figures. At the time that you were flying those F–16's, at that time we actually had 134 combat-coded fighter squadrons. Today we have 55.

This is the point I am trying to get across because we know it in this room, but the Americans do not know it, that we have a greater threat and we have less than half of the capability in terms of numbers that we had at that time.

Ms. JAMES. We are approximately 200,000 people smaller than we were at the time of Desert Storm.

Senator INHOFE. Yes, and that is the point I want to make, and I do not have time for that.

But for the record, I would like to ask you if we had three top priorities, what would they be if we had the funding levels to support where we are deficient today. For the record. All right? Thank you.

Ms. JAMES. Thank you.

Senator INHOFE. Oh, I meant to mention also I really appreciate your greatest asset being here too, Betty.

Chairman MCCAIN. Senator King?

Senator KING. First, I want to associate myself with the comments of Senator Inhofe. I think we are facing—all the testimony that has been in all the hearings, whether for me in Armed Services or in Intelligence, that we are facing a more diverse and serious threat environment than we have faced in any of our adult lives.

I think the important point—and people often talk about defense budgets and do we need to modernize the nuclear fleet—is that the most successful foreign policy initiative in terms of peacekeeping

has been our deterrent. The fact that nuclear weapons have not been used since 1945 is a function of the reality of the fact that have a deterrent force. It is a paradox that in order to prevent war, you have to prepare for war. There is a danger, particularly I am concerned, as is Senator Kaine, that we have ceded our congressional power over war-making to the executive. I think that is something that we really need to discuss and focus upon. But the larger question is how do we maintain the peace, and the best way to do that paradoxically is to prepare for war. That is what we are talking about today.

Let me ask some specific questions about the B–21. Is the fixed-price part of the contract fixed today? In other words, is there a price or is that to be set after the design phase? Madam Secretary?

Ms. JAMES. The price is related to what is called the APUC [Average Per Unit Cost]. If you think back, Secretary Gates in the year 2010 set a price point for what we now call the B–21. The fixed-price is fixed. It is fixed today.

Senator KING. It is a dollar amount?

Ms. JAMES. Yes.

Senator KING. It is so many millions of dollars per airplane.

Ms. JAMES. Yes.

Senator KING. As I understand it, 70 percent of the contract, roughly, is in this fixed-price component.

Ms. JAMES. Correct.

Senator KING. 30 percent is in the cost-plus component, which is engineering and design. The fixed-price part is fixed.

Ms. JAMES. We will make that price point—beat it actually, we hope, vis-a-vis what Secretary Gates set.

Senator KING. Could you explain as briefly as possible the incentive structure in the cost-plus part of the contract that is designed to mitigate the very real and I think legitimate concerns the chairman has articulated about cost-plus contracts generally?

Ms. JAMES. The basic approach involves having very specific performance milestones, having gates along the way during that cost-plus phase of the contract. Then there are incentives, meaning a fee that the contractor will earn, provided that they hit those milestones and do it correctly.

Senator KING. If they do not hit the milestones, if they do not hit the price milestones, if the cost-plus is too much on the plus side, they lose incentive fees.

Ms. JAMES. They lose the fee. They lose partly the fee or they can lose all of the fee under certain circumstances.

Senator KING. What we are really talking about here in contractual terms is risk. They are not willing to bear all the risk of new R&D, but we are not bearing all of it either because of the way the fee is structured.

Ms. JAMES. That is right. It is a shared risk situation, and the bulk of the incentives are geared toward the tail end of the EMD [Engineering Manufacturing and Development], which gives the contractor the incentive to go as quickly as possible and not drag out the cost-plus EMD portion, to get to production as quickly as is feasible.

Senator KING. Well, that gets to my next question. Senator Inhofe has a very powerful chart that talks about the length of

time it takes to bring a new airplane to flight, and it was something like 23 years as opposed to a new automobile or a new commercial plane. Those three things, automobile, commercial plane, and military plane, used to be the same, roughly, time frame 30 years ago, and today there is this dramatic difference.

Are we focused on time as well as price?

Ms. JAMES. We are focused on both, and we project the mid-2020's would be the IOC [Initial Operating Capability] of this aircraft.

Senator KING. Well, I hope that there are structures in the contract too that strictly relate to this issue because, you know, the F–35 time was a real problem. I think Senator Inhofe's chart was 23 years now is the time to bring a new——

Ms. JAMES. There are, Senator.

Senator KING. One final quick point in terms of design. Because we are designing a structure, a platform, if you will, that will have a significant life, 20–30 years, I hope that the design concept includes—"easy" is not the right word, but facilitates modularization and modernization without having to redesign the whole structure. I think that is very important. Otherwise, it is obsolete the day it takes to the air.

Ms. JAMES. You are right and it does.

Senator KING. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Sessions?

Senator SESSIONS. Thank you, Mr. Chairman.

General Welsh, with regard to nuclear issues, as Senator King and Senator Donnelly, our ranking member on the Strategic Subcommittee, we have been dealing with these issues for many years. I think we have good bipartisan understanding of these issues. Deterrence is the key fundamentally to peace. It is important.

Is it not true, however, that the Russians are aggressively pursuing nuclear advancement in making a number of—taking a number of steps to achieve that?

General JAMES. They are, Senator.

Senator SESSIONS. Tell me about how you feel about it. Particularly within NATO [North Atlantic Treaty Organization], we have a dual aircraft that is capable of nuclear and conventional weapons. I understand that it is at least a week before that aircraft could be loaded and deployed to deliver a nuclear weapon. It seems to me that is the kind of signal that Russia might misread as not being alert and determined to use our nuclear capability if we have to. Do you think that is acceptable, and should we improve that delay time?

General JAMES. Senator, there are various levels of response time required by the NATO system. It depends on the qualification level of the crew, the current alert status of the crew, the NATO threat level that has been set at the time. Actually I think you can do it faster than a week. But this is something you have to pay attention to all the time.

Senator SESSIONS. Well, I just think it is important for us, do you not, that we start our modernization program, get it moving to send a message to the entire world that we are not so shaken by the concept of nuclear weapons that we are not going to be pre-

pared to defend ourselves if it happened. Do you think we need to be sure we are moving forward at a steady pace to maintain the nuclear arsenal, modernize it, make it more safe, but yet more effective if delivered?

General JAMES. Senator, I think one of the reasons we are facing this bow wave and recapitalizing the nuclear infrastructure is because we have not stayed on a steady pace with our investment in it over time. Now we are going to have to pay the price and prioritize our investment over the next 10 to 15 years.

Senator SESSIONS. Well, I think that is the conclusion of our subcommittee, absolutely. Over the last 20–30 years, we are the slowest nuclear power in the world to modernize and recapitalize our nuclear weapons system.

With regard to this RD–180, Russian launch system, that goes into space, you have said this before, but I would like you to repeat it. Are you committed to transitioning off the Russian engine and to an American-made replacement as soon as feasible? Both of you can answer.

Ms. JAMES. Yes, absolutely.

Senator SESSIONS. Well, Secretary James, how we do that could impact significantly cost. Is that right?

Ms. JAMES. Yes.

Senator SESSIONS. Well, one figure you gave us, Madam Secretary, was $1.5 billion to $5 billion in cost. What was that?

Ms. JAMES. We agreed to do an analysis—and that analysis is still ongoing—of different possibilities of allocation strategies, one of which involves Delta on the one hand—so some of the launches going under Delta——

Senator SESSIONS. That would be the Delta medium that is more expensive right now?

Ms. JAMES. That would be the Delta—I am looking around. I think is that the heavy? That would be the Delta heavy. Then there would be—the other side of the allocation would be the SpaceX variant. SpaceX would do the launches that it is certified to do, and the others would be done by the Delta.

That approach would cost additional dollars to the Air Force budget, to the taxpayer, anywhere on the order of $1.5 billion more to maybe as high as $5 billion more depending on when you would cut of the RD–180 and start this approach. There are various assumptions at play here, and we are still doing the analysis. Those figures are preliminary.

Senator SESSIONS. Well, it is a bitter pill it is taking as long as it apparently is taking to replace the engine.

However, I am concerned about cost, and I think that you have to be concerned. A billion dollars or $5 billion would impact your ability to do the things you have already been asked about, would they not, General Welsh? It would have to come out of your hide.

General JAMES. Senator, that is the problem right now. It is balancing this.

Senator SESSIONS. Senator McCain and this committee is going to give vigorous oversight to that. But I think you cannot make foolish decisions and incur more cost than is reasonably necessary in this project. I really care about that.

With regard to the long-range strike bomber, now named the B–21, we are talking about $550 million a copy I understand. That is half a billion dollars per plane. Just for a layperson, that seems like a lot. Are we missing something here in our entire process of procurement both in terms of how many years it takes to accomplish this and ending up with a cost this high? Or is there anyway to achieve the same quality and capability in a shorter time at less cost?

Ms. JAMES. Well, that figure that you quoted, the $550 million, in fiscal year 2010 dollars is actually the price point that former Secretary Gates wrote into the acquisition strategy. Frequently in Defense, we do not pick a price point and then try to do the development and the procurement around that price point. The private sector does that all the time. Defense usually does not. This was a rather unusual program, and it was all about cost control. I know it is a lot of money, but it is a lot of capability for a lot of money.

Senator SESSIONS. Well, thank you. My time has expired. Thank you very much for your service, both of you, and we will continue to work on these tough issues.

Ms. JAMES. Thank you.

Senator REED [presiding]. On behalf of Chairman McCain, Senator Heinrich.

Senator HEINRICH. Thank you very much.

Secretary James, you mentioned at the beginning the focus on taking care of people. I still have very serious concerns that we are not adequately taking care of our RPA community, particularly our RPA pilots. I would certainly ask that the issue that Chairman McCain mentioned at the very beginning regarding bonuses be looked at again. You know, General Welsh, I know when we talked about this last year, the community was practically at the breaking point. As somebody who represents the Nation's premier RPA training mission in New Mexico, I am very pleased at the focus that has been put on this. I think that you, General Welsh and Secretary James, General Carlisle as well—we all very much appreciate the focus, but we have to do more because this is a very, very serious stressor and we are not seeing the relief that we need yet.

You have heard from some of my colleagues concerns about this as well. I want to put a little different focus on it in regards to my question and focus specifically on the training element of the RPA [Remotely Piloted Aircraft] mission versus the operational challenges that we face right now.

I want to ask what plans the Air Force has to invest in additional training facilities and infrastructure specifically at Holloman Air Force Base or at other locations to handle the increased workload that we see coming down the pipeline as a result of trying to fix some of these stresses.

General JAMES. Senator, this year in fiscal year 2017, the budget request asks for a little over $3 million to finish a GCS facility at Holloman so we can put the new Block 50 cockpits in there when they arrive, also to house the current GCS so we get people out of trailers into a little more livable day-to-day environment.

Next year we asked for more money because one of the things that has changed in our plan as a result of the "get well" plan is that the 6th reconnaissance squadron, which has been doing the

training for the Predator crews, was scheduled to be divested. We are now going to keep that, transition it to MQ–9's, build new facilities, equipment, and the infrastructure required to be able to train students in that squadron now. That will also be done at Holloman. I believe that is $43 million here in the next couple years.

Senator HEINRICH. Fantastic. I think this focus is going to pay a lot of dividends down the road. I appreciate everything you are doing on this front.

Secretary James, last year one of the things that I expressed concern about is the lack of modernization for our Air Force research laboratories. As you know, these labs play a critical role in developing and deploying next generation systems, improving acquisition program outcomes—we have spent a lot of time talking about that today—and in making sure that operational technical problems are solved in a reasonable time period.

I am still highly concerned about this. I look at this budget and it invests heavily in modernization programs like the F–35, the B–21, but it seems to be continuing to shortchange the underlying infrastructure that develops the technologies that really set us apart from our adversaries in the world.

What is the Air Force's plan to modernize its research laboratory infrastructure, specifically focused on things like MILCON [Military Construction] and increased flexibility for minor construction projects so that we have that infrastructure in place to support the kind of capabilities that we all know we need?

Ms. JAMES. Just a few points, if I may make, Senator. There are two Air Force-owned lab projects that are in the fiscal year 2017 budget, $13 million for a facility at Kirtland, which would be focusing on space vehicle research, and then there is a $75 million project for Eglin, and that would be focusing on advanced munitions and technology. Those are the two that are Air Force-owned labs that are in the budget.

We also have dollars in the budget that will do the MIT–Lincoln Lab approach. That is a different form of a lab. We are advancing the ball on that.

But let me come back to your overall point, and that is the infrastructure spending across the Air Force. This was one of the reductions that we had to make, one of the tough choices, along with some of the modernization choices and the other things that we talked about earlier. Neither one of us—I think I speak for the Chief too. We are not satisfied with the level of funding there. We are essentially shortchanging a lot of different areas and a lot of different facilities, but that is, again, a budget situation. A BRAC [Base Realignment and Closure] would certainly help for us to be able to shed excess infrastructure and that way we could spend the dollars on those facilities that we really need for the future.

Senator HEINRICH. I wanted to raise this for my colleagues because I think we need to understand that there are some very difficult tradeoffs being made here. We are certainly not meeting the needs of basic infrastructure, and it is one of the things we need to focus on with regard to research and development and also with regard to things like our ranges, which just simply do not also get

the MILCON investment that they need to support all of our services, not just the Air Force.

Thank you all.

Senator REED. On behalf of Chairman McCain, Senator Cotton, please.

Senator COTTON. Thank you.

Earlier this week, I chaired a classified hearing of the Airland Subcommittee about the B–21. It was a very worthwhile hearing. One thing I noted in that hearing is no member asked about the need for the next generation bomber. They understood the strategic threats we face and the capability it delivers. Obviously, there are many issues that we cannot entertain here in this hearing.

But one thing I would like to hear from both of our witnesses on the question we asked in that classified setting is why will the B–21 be different. We have ongoing issues with the F–35. We were supposed to have 620 F–22's. We got 187. We were supposed to have 80-something B–2's. We got 20. Many of those decisions go back decades. There is not much we can do about that now. But what is it about the way the contract for the B–21 has been structured and about this aircraft that gives us the confidence, given the vital need for the aircraft, that we will, at the end of the program, in fact, have 100 aircraft? General Welsh, if you would like to start.

General JAMES. Senator, for it to be different, we have to make it different, which is going to require attention from this minute forward under this program at every level of our Air Force and the right kind of oversight provided by everyone from the Congress to the Department of Defense to our folks in Air Force Materiel Command and our acquisition chain.

The difference to date has been the collaborative effort with industry before we even sent a request for proposal out to industry was, at least in our experience, incredibly good. We identified needs and the cost curve before we wrote the requirements for the RFP [Request for Proposals]. We set a requirements baseline for this airplane 4-plus years ago and it has not changed at all. We have held very firm to that. As a result, the industry teams who were competing were able to get way ahead of the game in terms of looking at integration of sensors onto the platform, final design work, et cetera because they were not worried about us changing a requirement that would cause them to reshuffle all that work again at some point in their development process. I think that is why we saw the fact that the actual price that they came in within their bids was lower than what we had put on as a requirement of the system.

We have to keep that same kind of communication, that same kind of dialogue going from now forward. We cannot take our eye off this ball or it will drift like everything else has. We just cannot let it.

Senator COTTON. Secretary James, do you have anything to add?

Ms. JAMES. First of all, I certainly concur with everything that the Chief said.

Back to the actual strategy, we tried to learn from both successes and failures of the past acquisition strategies. We are approaching this differently. He mentioned the importance of having stable requirements, and in order to change a requirement, it requires the

Chief of Staff of the Air Force himself to sign off on such a thing. There have not been changes.

We went and we got two independent cost estimates because the other thing that we learned from the past is having proper estimates that are realistic is really important. We budgeted to a higher independent cost estimate to provide enough margin in the program. Then we structured the contract in a hybrid fashion, some of which is cost plus incentive for a portion of the contract, and a lot of it is in the firm fixed-price world. The period of development, which is cost plus incentive, the incentives are specifically structured so that the contractor will be incentivized to meet milestones on time. If they do, they make their maximum fee. It is also backloaded such that the contractor is incentivized to get through the cost-plus portion into production and into the firm fixed-price as soon as feasible and not drag it out in the cost-plus arena.

Then if I could ask the Chief to just say a few words because the other part of the question had to do with the need, the Nation's need for the bomber, and how it will be different, given the threats that we——

Senator COTTON. My time is running short. As I said, there was uncommon consensus in the subcommittee hearing about the need for this next generation bomber.

General Welsh, I want to turn my attention to a more immediate practical matter. I hear from Arkansans who are flying missions in the Middle East right now over Iraq and Syria that our aircraft are in some ways facing a maintenance crisis, that we have F–15E's that are either not able to take off or having to return early because of their age and because of maintenance issues. Could you say a little bit more about this situation?

General JAMES. Sir, our fleets of airplanes are getting old. All of them are, except the ones just coming off the line now. We have now six fleets of airplanes that are older than 50 years old, and we have 23 I believe that are older than 25 years. Supplies are getting tougher to find. Manufacturers are diminishing. Cost of maintenance is increasing. Our aircraft availability is going down in virtually every system we have. It is just a fact of life right now in the Air Force. It is why we have to modernize. The cost of day-to-day operations in our Air Force is going up because the fleets are old.

Senator COTTON. Well, you can imagine what it is like to hear from Arkansans who are either flying these aircraft or whose children are flying these aircraft. On the one hand, they see cost overruns on the F–35. They see brand new F–15A's destined for Saudi Arabia sitting on the flight line at St. Louis, and then they see what happens to pilots when their aircraft goes down over territory controlled by the Islamic State. Are we putting the kind of resources we need to into this immediate problem of the maintenance and flight readiness of these aircraft that are being flown every day by America's sons and daughters over a brutal terrorist army?

General JAMES. Senator, we pay an awful lot of attention to maintenance of our airplanes before we put people in them to go fly. I think that is reflected in the actual maintenance rates and the lack of emergencies over enemy territory for the last 25 years. Our maintenance teams are remarkable. They are stressed because

they are undermanned. We have built up a 35,000 person ISR enterprise over the last 10 years or so while we cut the Air Force 50,000 people overall, which is an 85,000 person cut to the rest of the 330,000 mission area in the Air Force. We are thinned out everywhere. That is the manpower problem. There is no place we can go to grab people because we are undermanned everywhere. Our people are working their tails off. They are doing great work. I feel comfortable about the safety of our crews who are flying these airplanes, but keeping them safe is getting harder and harder and more and more expensive.

Senator COTTON. Well, thank you. My time has expired. But I think it is incumbent upon us as a committee to do everything we can to make sure that we are getting you the resources and tools that you need on the front lines, even as we are looking to the next generation of capabilities as well. Thank you.

Chairman MCCAIN [presiding]. Senator Nelson?

Senator NELSON. Mr. Chairman, welcome.

General Welsh, thank you so much for your long and very distinguished record.

I just want to raise two questions that, while I am doing a markup, I am sure the chairman raised. One is the Russian engine, the RD–180. Madam Secretary and General, is it your opinion that we would buy the RD–180 as little as possible in order to protect us against a gap that we would not have sufficient engines to have access to space?

Ms. JAMES. I certainly want to buy it as little as possible. You said the magic word, sir, and that is assured access to space, which is the top job that we all have.

The other element was we were trying to get to a competitive environment so that two companies could actually have a reasonable competition and that would be a good thing for the taxpayer, the industrial base, and so on. We did feel that a little bit more flexibility in the number of engines would help get us through that competitive environment to the transition and to such point that we have a fully capable rocket, plus an engine manufactured in America that is integrated and certified. We think that is a little bit more time and a little bit more flexibility would be helpful.

Senator NELSON. I will just conclude this by saying that we are concerned about a gap of potentially three or four years where the only way to get to space is we could not go on the Falcon 9 because it does not have the lift capability of getting some of those payloads to orbit and would have to go on the Delta IV. But there you are talking about a much more expensive launch than the Atlas V, which could put those payloads to orbit. Is that correct?

Ms. JAMES. That is correct. Essentially it boils down to money. If you were to cut off the use of the RD–180's, depending on assumptions, the manifest would have to be changed and things would perhaps get delayed to a degree. But this is where I referenced that our analysis is still ongoing.

Senator NELSON. Okay. I think we all want to get to the same place, and the bottom line is assured access to space.

Ms. JAMES. Right.

Senator NELSON. Let me go over to the B–21. In this contract, we have got production at the end, and we have got development

now. Because of the good work by the chairman on previous contracts, namely the tanker, and his concerns about the overruns, the chairman is quite concerned about is this a cost-plus on the development side. But you all, obviously, having been very sensitized to the fact of overruns in the past, indeed, as the chairman has pointed out, on the F–35, you wanted to make this as tight as you could going out on an RFP. In that development stage, you actually have about five units that are going to be basically at fixed-price. Is that correct?

Ms. JAMES. The contract that was let some months ago is for engineering, manufacturing, and development, and then it is also for the production phase, the LRIP [Low Rate Initial Production], what is called LRIP, the low rate initial production phase, and that will deliver to us a certain number of aircraft, 21, if memory serves me correctly.

Senator NELSON. General, do you want to add anything to that?

General JAMES. No, Senator. Those aircraft are at a fixed cost after that, the first five production lines.

Senator NELSON. I must admit in the classified briefings that we have had and that this Senator has had personally, I, knowing the sensitivity of the chairman, have hammered on this over and over with regard to watching the cost. I have been impressed with the Air Force doing everything that you can possibly do on a contract of this magnitude to make sure that you rein in those costs. It is our job to have the oversight and to make sure that you are doing the job. I want to commend you for what you have done thus far.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Ayotte?

Senator AYOTTE. I want to thank the chairman.

I want to thank both of you for your service to the country and your families as well. Appreciate it.

I would like to ask you, Secretary James, about the Haven Well situation in Portsmouth that you and I have talked about, the PFC [Perfluorinated compound] contamination of the groundwater in Portsmouth, New Hampshire. This is something that I just have a couple of questions on.

The Air Force submitted a report last September and found that as of September 15th, there were thousands of servicemembers, both Active Duty and Guard, as well as civilians, that may have been exposed to the PFCs there. I just wanted to get the update on what the plan is to contact those individuals.

Then as a follow-up on this, the City of Portsmouth also just submitted recently a proposal to the Air Force on how to clean up the contamination at Pease. I understand that was submitted three weeks ago. I would like just to get a sense of when you expect the Air Force to respond to the City of Portsmouth. Obviously, I hope you will be transparent and responsive.

Ms. JAMES. On the second point, Senator, I am going to have to go back and check with our Assistant Secretary for I&E just to see where that proposal stands. I have not seen that proposal myself.

Senator AYOTTE. If you can submit just when you expect to respond for the record, that would be helpful. Thank you.

Ms. JAMES. I will do that.

You are right. You and I have talked about this. Sometimes as we as a country and as a military, in our efforts to protect people, sometimes communities get contaminated to a certain degree. We regret it and we stand by it, and we are prepared to take the right action and clean it up.

We have notified airmen, including former airmen, of what has happened so that they are aware of it, and that occurred, if I recall correctly, by mid-December. That happened some time ago. We are going to clean the water.

We are also working with the CDC [Centers for Disease Control] on the matter of developing a plan for health monitoring. They have the lead, but we are working with them.

Senator AYOTTE. Excellent. I would just urge you with Portsmouth submitting the proposal, that you work very closely with the city and in a transparent manner so that we can really get this cleaned up and also get treatment or support for anyone who has been affected. I appreciate that. Thank you.

General Welsh, I would like to ask you when do you expect the SDB–2 to achieve a demonstrated full mission capability for the F–35A.

General JAMES. Senator, I will have to get the date. I do not know that off the top of my head.

Senator AYOTTE. I think we have, in some documents, heard from your staff that it is not going to be before 2022, but if you can get me the exact date, I would appreciate it. Thank you.

Senator AYOTTE. I would also like to ask you—I know that Senator McCain had asked you some questions about the A–10. How many A–10's will be grounded in fiscal year 2018 due to unserviceable wings and also how many in 2019?

General JAMES. Senator, our intent would be for none of them to be grounded for unserviceable wings. A–10's that are in the fleet we need to keep flying.

Senator AYOTTE. Excellent. I am glad to hear that.

As I understand it, there needs to be some work done on the A–10 wings. Does the Air Force plan to submit a reprogramming request to ensure that that support is there? Because I understand there is going to need to be some work done or some enhanced wing assemblies.

General JAMES. Senator, my understanding of this is that we have the funding and the wings necessary for fiscal year 2017, and we have a decision point during this year that we will reach where we have to make a decision on acquiring them in 2018 and beyond. If that is not accurate, I will get you the right answer shortly after this hearing.

Senator AYOTTE. Well, one thing I understand is that there are 110 more wings that are needed. Am I hearing you say today that you are committed to ensuring that these wings are repaired and that they remain, obviously, operational so that we can continue to use the A–10 as it is doing, as I understand Ash Carter, the Secretary, has recently said, a great job in the fight against ISIS [Islamic State of Iraq and Syria]?

General JAMES. Senator, they are doing a great job in the fight against ISIS and everywhere else we use them. Anything that we

have in our inventory that needs modifications to stay safe and effective, our intent is to continue to do that.

Senator AYOTTE. Okay. I appreciate that.

I also want to ask about what is happening in the boneyard right now with the A–10. As I understand it from information my office has gotten, in 2014 the Air Force scrapped or destroyed about 44 A–10's, and even beyond that, as I understand it, in 2015 as well, there were a number of A–10's scrapped, to a total of 82 A–10's scrapped in the boneyard. The cost to destroy one of these A–10's is, as I understand it, $15,500 per A–10. One thing I am concerned about, as we have the A–10's out fighting the battle against ISIS, we have the Air Force spending about $1.3 million in the last 2 and a half years destroying A–10's. Are there no parts on those aircraft that were destroyed that could have been used to support the A–10's that are being deployed now? Is that not why we keep—one of the reasons we keep them in the boneyard?

General JAMES. Senator, the word "destroy"—I have to define that. I do not know what that means. I do not know if that means they disassembled them and took parts of the airplane to use as spare parts, which would be normal. I do not know the facts on this case, Senator. I will find out for you.

Senator AYOTTE. Well, I hope you would because, as I understand it, we have been told that there are plans to destroy a total of 79 A–10's this and next fiscal year. What I would like to understand is if we are destroying these A–10's, is this being done prematurely, number one, given obviously the concerns we have about the close air support capacity and also the concerns that we ensure that we are getting the right parts to keep our flying A–10 fleet in really full maintenance operational capacity? Can we make sure that we get an answer to that?

General JAMES. Yes, ma'am. We will get you an answer for that. There is certainly no intent to not have flying airplanes fully serviced with spare parts. I doubt very seriously if anything is going on that is causing that to happen. But I will get you the facts. I just do not know.

Senator AYOTTE. Well, I appreciate it. I appreciate the follow-up on both the wing issue, which is critical to make sure that our A–10's keep flying and also on the boneyard issue. Thank you, General.

Chairman MCCAIN [presiding]. Senator Kaine?

Senator KAINE. Thank you, Mr. Chair.

Thanks to both of you, Secretary James, General Welsh. It is always good to have you here.

I want to ask about two things: budget and Air Force sort of strategic thinking about unmanned platforms. On the budget first.

In your testimony, you talked a bit and offered I think appropriate thanks to our chair and ranking member on the two year budget deal that we struck in October and the appropriations bill that we followed up with in December.

We have now done two two year budgets in a row. Painful getting to both of them. But to me the two year budget deals sort of have three strong pluses.

One, two years gives you more certainty than one year. I think certainty is good.

Second, in the two year budget deals, we have treated the BCA caps as a discipline but not as straitjacket. It is sort of a starting point, but in each of the two year budget deals, Murray-Ryan in December 2013 and then the deal in October, we used the caps as a starting point, but we adjusted off them to take account of current realities.

The third positive about this deal in my view was that it expressed a preference for base funding over OCO [Overseas Contingency Operations] funding, and it was something I think everybody on this committee wanted to get to. There is a role for OCO, but we should not use OCO generally just as a way to end run the caps. We should try to, again, provide more predictability by putting funds in the base when we can.

There is a little bit of discussion going on up here now. I am on the Budget Committee too. More of it is on the House side than the Senate side about whether we should undo the second year of the two year budget deal and just revisit it and maybe do something different. I strongly opposed that on the theory that two year budget deals are providing certainty and why would we want to now kind of throw that up in the air and inject more uncertainty in the situation.

Would you agree that a two year deal provides a certainty that is helpful to you and, if at all possible, we should kind of try to stick with it?

Ms. JAMES. I certainly agree that having certainty is an excellent thing and the two year budget deal does give us that certainty. Not so much from my military work but from my professional staff member work when I was on the House Armed Services Committee, I would tend to agree. If you do that to the deal, if you open the deal, it might open up a hornets' nest. But again, I say that from my past experience.

As you heard both General Welsh and I note, and many of the members have noted, there are all these programs that people are concerned about. We are concerned about them too. We certainly could use more money. But I as an American citizen would not want to see the deal reopened and then everything go poorly as a result and lurch toward a government shutdown and things of that nature. Stability is pretty key.

Senator KAINE. General Welsh, additional comments?

General JAMES. Senator, all the concerns about the makeup of the budget plan we share, but stability is a wonderful thing actually, especially in the environment within the last few years.

Senator KAINE. It seems to me maybe we have kind of blundered into—I am not sure we have gotten there completely intentionally, but we have blundered into a positive where you do a two year budget deal, then a 1-year appropriations deal. The two year budget provides some general certainty, and when you get the first year appropriations bill done, that gives you some predictability, but it also gives you the ability in year two to alter the appropriations line items to take account of some reality. You get some in-the-ballpark certainty with the ability to kind of true things up in the second year. It is my hope that we stick with the two year deal and do not do another one.

I want to ask you about unmanned platforms and really bigger picture kind of strategically how you approach it. I was reading last month a series of articles about the CBARS of the Navy. It is carrier-based aerial refueling system tanker that they are working on that I think the committee has supported. It kind of made me wonder within the Air Force how doctrinally do you approach the analysis of platforms to determine this could be profitable to go, an unmanned direction. These would be platforms we would never want to go unmanned. All my military LAs [Legislative Liasons] have always been people who have flown things, and so I am all into pilots. But I am just kind of curious about how you approach this question for your future investment about what can be done unmanned and what necessarily needs an onboard crew.

General JAMES. Senator, I think we start with where does having an unmanned platform in some way, shape, or form make the mission either more cost-effective or more successful. An example initially was ISR [Intelligence Surveillance Reconnaissance]. You can actually orbit over a point in space—you can monitor a target for hours and hours and hours beyond what the human body can tolerate. But we have less than 10 percent of our aircraft fleet is unmanned at this point in time. That will likely grow over time. When it becomes safe enough to fly unmanned systems that move freight over time and distance in a predictable way with the autonomy to manage routes, et cetera, I think you will see it grow there.

We have to be careful about cost curves that look a lot like airplane cost curves that we have discussed earlier for unmanned systems. That will not work. We cannot keep going bigger and more cosmic. We have to go smaller in some cases and look at augmenting manned platforms. You know, swarms is a great concept. If it can be managed from an airborne platform or remotely by a human in the loop, they would become incredibly effective very, very quickly.

We are looking for those ideas where it is practical, it is affordable, and we can build a program we can execute in the near to mid-term before we start to change a mission area to remotely piloted with vehicles.

Senator KAINE. You mentioned the swarm concept. We have not spent too much time talking about that here, but I gather that that is a very important component of this thinking about sort of the third offset. If that is going to be a big strategic direction going forward, that would necessarily involve the innovation around the creation of new unmanned platforms.

General JAMES. Yes, sir. Man-machine interface coupled with autonomy, coupled with thinking systems is exactly what the third-rail strategy is all about. We have been working on this for the last couple years.

Senator KAINE. How much of that work—oh, I am already over. I am sorry, Mr. Chair. I will stop there and follow up later.

Chairman MCCAIN. Senator Rounds?

Senator ROUNDS. Thank you, Mr. Chairman.

I just want to go back just a little bit. I also attended the classified briefing on the B–21. I was curious about when we talk about this hybrid contracting strategy of the cost plus incentive and then the fixed-price, have you ever used it before. Clearly there was a

logic and you understood the need to look at keeping our costs under control and working it through. You have touched about it here with Senator King a little bit and so forth. But is there anything else with regard to the approach that was determined that we really have not delved into today that you think should be said?

Ms. JAMES. I think we have covered it fairly well today, Senator. The key components are thinking how we look to the programs of the past, both those that had done poorly and those that had done well. Given the specifics of this program, some of which involves mature technologies, that suggests less risk, but when you are talking about a never-before-developed platform and then the very important integration, that suggests that there is risk. As I mentioned for that development phase, we did think cost plus incentive was the way to go but carefully constructing those incentives to get the types of behaviors from the contractor that we seek.

The Chief is in charge of requirements. The stable requirements is very important. We think we have budgeted well for this. We took the independent cost estimate and we budgeted to that level, which is higher. That gives us a margin of protection, and we are looking to move into the production phase, which is firm fixed-price, as quickly as is feasible. The incentives are structured to make that happen.

Echoing what the Chief said, it ultimately will come down to persistent focus and the human beings who will be overseeing this to keep it on track. Certainly we—and there is another team of people as well. We are very committed to doing that.

Senator ROUNDS. With regard to your readiness goals, the priorities and the responses that you have to demands that are there right now, how would you assess the high-end combat skills such as those that would be employed against a near peer competitor? I know we are talking a little bit about the A–10 and so forth, and I know that in its current environment there, it has a high survivability rate. If you are talking about near peer competition, there may be some real challenges with the A–10, but that would not just be the A–10. It would be other areas as well.

What would you believe to be the biggest obstacles in the Air Force's readiness recovery?

General JAMES. To answer your first question, sir, how do I see us against a very tech savvy, well-equipped foe, we are rusty. That is not what we have been doing for the last 25 years. We have been operating in a different environment.

I think the key being ready for the full spectrum of operations that we could potentially face is consistent and persistent investment over time in the mission critical infrastructure that allows you to train to that level. We have heard discussion from Senator Heinrich, for example, about training ranges, black and white world test infrastructure, simulation infrastructure so that you can actually simulate a threat that our fifth generation capabilities will be operate against. Building that in the real world in a training range is cost-prohibitive. We have to get into the simulation business and go to virtual constructive and then add live training into it.

All those things have to happen to develop a force over time, and that is the long-range readiness issue that we have to invest in

now to recover. That will take us 8 to 10 years once we have a chance to reset the force from what we are doing today, which is not going to happen soon.

Senator ROUNDS. I have got just about a minute left, but I am really curious. You talk long-term. What about the near-term and mid-term readiness rebuilding efforts? Can you rank basically how this is fitting in with the need to modernize specifically the purchases of the F–35, the KC–46, the B–21, the cybersecurity needs that we need to address, the capabilities, the ISR priorities? How does that fit in terms of the rebuilding efforts right now for modernization that we are challenged with as you talk about? How does it fit in?

General JAMES. Senator, for us it has to fit in at the top of the priority list. The prioritization right now in our budget, as we make decisions, wherever we can, we prioritize at this point manpower, size of the force. We cannot get any smaller. We just cannot do what we are trying to do right now plus anything new if we get any smaller.

The second thing is readiness because when the Nation calls, we have to be able to answer.

Then the third thing is modernization. This year, what you are seeing in our budget is we have cut the force for 25 years straight, and now we cannot cut it anymore and still do our job. We cut readiness for about 10 years to pay for modernization, and about five years ago, we decided we cannot do that anymore. We are not going to be ready enough as a force to do the job if we are called.

Now the only place we have left to go for money to balance things out is modernization. That is what the budget reflects. That is why you are seeing the F–35 slid to the right, even though we have been trying to protect it. You are seeing other programs that make F–16's and F–15's viable in 10 years against the threat we expect then are being delayed because we just do not have the money to do it. It is a balancing act, Senator.

Senator ROUNDS. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Donnelly?

Senator DONNELLY. Thank you, Mr. Chairman.

Secretary James, I want to start by thanking you for the time you spent with me at Grissom Air Base in Indiana last year. It sent an important message to the men and women of 434th and the communities that support them about the importance of their mission.

Madam Secretary, when do you anticipate we will see another KC–46 basing opportunity for a Reserve-led unit? Either one can answer.

Ms. JAMES. Yes. Chief, if you have that date or do you have it written down?

The next time a basing decision for a Reserve unit. Is that what you said, sir, for the KC–46?

Senator DONNELLY. That is correct.

General JAMES. I think the next update will be actually late winter this year, late this year, early next year, and then that will be the decision that has already been announced for MOBE–4. The primary base has already been identified and the alternates have

been identified. That environmental study has now started and it will be done the end of this year.

The next one, I believe, starts—the next study—we are going to start looking at it in late fiscal year 2017—or excuse me—calendar year 2017 for the next selection of the next KC–46 base.

Ms. JAMES. Would that be for the Reserve——

General JAMES. I do not remember which is the next——

Ms. JAMES. We are going to get back to you on this so that we get you a good time frame.

Senator DONNELLY. In the last basing decision, the Air Force emphasized the importance of Reserve-led associate units, which aligns with the recommendation of the Air Force Commission report that recommended expanding the number of associate units. Do you anticipate that the Air Force will be creating more Reserve-led associate wings in the future?

Ms. JAMES. I am very interested in associate wing structures, and so we cannot say for sure, but we are pushing, pushing, pushing for additional integration at all times. I think it certainly is a possibility and we will just have to continue to review as we go forward.

General JAMES. Senator, we mentioned the integrated wing that we will start testing this year. That integrated wing is actually a Reserve wing, and it will be led by a Reserve commander with Active Duty fully embedded inside the wing.

Senator DONNELLY. Secretary James, when we talk about the growing threats to U.S. air superiority, many people assume we are talking about a distant prospect of direct conflict with countries like Russia and China. But while that is a reality, we also need to be prepared for a more immediate concern, which is the spread of advanced Russian and Chinese weapon systems into the wars we are already fighting. We are seeing advanced air defenses spread to countries throughout the Middle East and Africa, including Syria where our pilots are already flying.

General Welsh, understanding we are in an unclassified setting, how concerned are you for our airmen and women if they have to face systems like Russia's S–400 in the near future?

General JAMES. Senator, I am very concerned about it. That is why I keep insisting that we have to modernize. An air force that does not stay ahead of the technology curve will fail. 53 countries today are flying Russian fighters around the world. They will export their new capabilities as they field them, and their new capabilities will be better than our old stuff.

Senator DONNELLY. General, are you willing to provide us, you know, as time provides, a classified briefing regarding the threats our airmen are facing even not so much with Russia and China but where their equipment is being utilized?

General JAMES. Sir, I would be honored to do that.

Senator DONNELLY. Thank you very much.

Secretary James, is the Air Force committed to commonality as a means to modernize and maintain the triad in a way to work together to not only be more efficient but also help on the budget end as well?

Ms. JAMES. We are definitely actively exploring different elements of commonality with the Navy as we together are looking to

modernize the three legs of the triad. Yes, we are looking at that very closely.

Senator DONNELLY. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Sullivan?

Senator SULLIVAN. Thank you, Mr. Chairman.

Madam Secretary, General Welsh, thank you for your testimony.

I want to begin by just thanking you and the airmen you lead for what you do. You know, your testimony highlights a lot of things that I do not think most Americans are aware of like constant combat operations for a quarter century. It is remarkable. The broader number of areas in which you specialize, fighters, close air support, ISR, strategic airlift, two-thirds of the nuclear triad, GPS [Global Positioning Systems] systems.

You know, my State sees a lot of this on a daily basis. As you know, the F–22 fighter squadron just recently deployed to Korea and Japan as a show of force for our allies there. We are intercepting Russian bombers again almost on a weekly basis. You know, in Alaska, we have become the combat air power in the Asia-Pacific, if not for the country, in terms of F–16's, F–22's, C–17's, KC–135's, AWACS, HH–60's, the C–130's, F–35's come in JPARC [Joint Pacific Alaskan Range Complex] . I just appreciate and see a lot in terms of the airmen that you are leading.

Let me ask a basic question. Actually two. How is morale? When you are here testifying talking about cutting forces, cutting readiness, that has got to impact morale.

Then a broader, more strategic question, you are here talking about a budget that is cutting our ability to do what the Air Force does best, the smallest Air Force in our history. Why do you believe the President or Secretary of Defense is putting forward such a small budget? Why do we not begin with morale?

General JAMES. Morale actually, if you visit as many airmen as I am privileged to visit and Chief Cody is privileged to visit and Secretary James is privileged to visit, you walk away with the perception that morale is pretty darned good. They are a little tired.

Senator SULLIVAN. Great.

General JAMES. They have questions. They are concerned about the future because they actually are very connected to what goes on in this city and all these issues we have been talking about.

Senator SULLIVAN. Right.

General JAMES. They pay attention. Even our very young airmen do. All the services are this way now. They are worried about their future, the future of their mission set, what is happening to their airplane, their squadron, their family services. All those things are of interest to them. They sense this pressure on resources, which is going to affect those over time. But when it comes to how proud they are of who they are, of what they represent, of the people they stand beside, and of how well they do their job, morale is not an issue.

Senator SULLIVAN. That is good to hear.

How about on the budget?

General JAMES. I think the budget is—well, you will have to talk to the President and the Secretary of Defense to get why they are submitting the budgets they are, sir.

But I will tell you this, the folks in the Air Force just see what we are asked to do and they want to do it better than anybody else on the planet can do it. When they do not feel they have the right tools to get that done or there are too many things to do for the number of people they have standing around, they get frustrated by that.

Senator SULLIVAN. Let me ask on the F–35's. You know, Lieutenant General Bogdan has highlighted that you are beginning to reduce the unit price of the F–35A to well below $100 million, but your budget proposes to decrease procurement to 43 from 48. Does this risk undermining or reversing the reduction of unit costs in terms of what you have been able to do to drive down costs?

Ms. JAMES. I was going to say we do not believe so, not for the short run. The reason for that, because when you decrease the buy, ordinarily the unit cost does go up, but what the dynamic is over the next several years is that because of the FMS [Foreign Military Sales] buys being higher, we believe that the unit cost will be stable, reasonably stable, and not go up dramatically because of this. As you said, General Bogdan is very focused on cost control and continuing to do better and better.

Senator SULLIVAN. Do you believe that the reduction in procurement—is that going to impact the arrival of F–35's that are scheduled in places like Eielson or other bases around the country?

General JAMES. Senator, over the next 15 years—if we stayed at the lower production rate, over the next 15 years, it would mean two fewer squadrons to field between now and 2030. It is going to affect someplace.

In the near term, it will not have a dramatic effect because we will be standing units up. But by 10 to 15 years from now, you will start to see a delay in beddown of units.

Senator SULLIVAN. Let me ask one final question. I want to follow up on what Senator King had talked about on the procurement timeline and how the procurement timeline for major weapon systems has increased dramatically over the years. In the NDAA [National Defense Authorization Act] last year, the chairman and others on this committee were very focused on giving you more authority over procurement.

What do you believe is the most important thing we can do, either the services or the Congress or both, to help bring down the procurement timeline of major weapon systems that we have seen grow over the years that I do not think anyone is satisfied with?

Ms. JAMES. Well, first of all, the changes of last year I think are very positive. To the extent now that the Air Force and the Navy and the Army will be able to be the MDA [Milestone Decision Authority], the decision authority for milestones, going forward on some of the newer programs, I think that will help as we go forward.

My advice to you would be to continue—and we do the same thing with our regulations—continue to look to streamline, wherever possible. Sometimes we have the approach of lots and lots of oversight. We do this. You do this. Although that is I think a good idea on troubled programs—we have to do that when things have gone amiss—sometimes you need to ease up a little bit on the vast majority of programs that are actually going quite well. Because we

have a set of rules that tends to apply to most programs at a certain dollar level, even the programs that are executing well, nonetheless, have the weight of what I will call a lot of oversight. I would say continue to look streamline, and we should do the same thing on our end.

Senator SULLIVAN. General, any thoughts?

General JAMES. Senator, I believe that really reform acquisition—you should start will smaller programs and look at them in a very concentrated way. Ninety-five percent of the acquisition programs in the Air Force are cost and schedule. They do not get the same attention the big programs do, but they are going tremendously well, and they normally do.

If you identified some category of those smaller programs and went to the program managers and their industry partners and said, what can you do to take 50 percent of time and 25 percent of cost out of your small program and then gave them leeway to do that and looked at the results, we may be able to learn which things are not adding value to the process and then bring those up into the bigger programs.

When we start with the big programs, nobody really wants to give up oversight control, and it is harder to make change that way. But we have got a lot of programs that work really well. Let us make them work much, much better and then learn the lessons from that to change the enterprise.

Senator SULLIVAN. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Blumenthal?

Senator BLUMENTHAL. Thanks, Mr. Chairman.

I would like to continue the line of questioning that Senator Sullivan began on the F–35. The delay in procurement of five F–35's was accompanied also by the pushback, the delay in 60 aircraft per year as a procurement plan. You are saying today that will not increase the per-unit cost because there will be FMS, foreign military sales? By what countries? What increase in per-country sales by what countries and when?

Ms. JAMES. I will have to get you that detail.

Senator BLUMENTHAL. Well, how can you testify, with all due respect, that you are confident that the per-unit will not rise when you cannot tell us what countries will be buying more of the aircraft?

Ms. JAMES. General Bogdan, the program manager, has informed us that because of FMS buys, he does not project that the unit cost will go up in a substantial or material way. That is his assessment.

I will get you the list of FMS customers.

Senator BLUMENTHAL. Do you have information as to any countries that will be buying more?

General JAMES. Senator, I know countries' air chiefs who have talked to me about their countries' desire to buy into the program. They have not fully committed to the program yet, and I do know there are air chiefs who would like to buy more in the near to midterm. With your permission, rather than talking about them publicly, I would be glad to give you—tell which ones those are after the hearing.

Senator BLUMENTHAL. I think this is an important point because we know what happens when sales decline. Ordinarily, as Secretary James has observed quite rightly, the per-unit cost rises, and the viability of this program really depends on it being affordable and the credibility of the companies and the entire Air Force budget depends on this kind of information. I certainly would appreciate that information, and I know—I agree with you—that there are countries that would like to buy more, but we also have seen that other countries are as hard-strapped as we are, in fact, even more so because their economies may be less robust than ours. That kind of information is really important.

How important do you think that the F–35 program is to the Air Force modernization plans, General?

General JAMES. Sir, the F–35 program at this point in time is essential to our modernization program. Capabilities are going to be fielded by both China and Russia in the next five to six years, if not a couple years sooner, that will make airplanes that we have in the fleet today, except for the F–22, not competitive. We have to have some level of ability to compete with those threats in the future.

Senator BLUMENTHAL. Well, I agree with you completely, which is why I am so concerned about the affordability of the program and the trust and confidence of the American people that it can be done within the limits of what our spending can be.

Let me turn to the——

Chairman MCCAIN. Before you leave that issue, it is well known that the new Canadian Government is reconsidering their commitment to buy the F–35. That is amazing. I do not know where the witnesses have been residing, missing out on these international decisions that are clearly under review by many nations because of the cost of the F–35.

Please proceed.

Senator BLUMENTHAL. Thank you, Mr. Chairman.

Let me turn to the National Guard and Reserve units. I know, Madam Secretary, you had responsibility as an Assistant Secretary for our Reserve program. I am concerned that the Active Air Force is receiving C–130J aircraft. Our National Guard and Air Force Reserve will still be flying the C–130H. Perhaps, General Welsh, you could tell us a little bit about your strategy for outfitting the Air National Guard and Air Force Reserve with the most suitable modern aircraft.

General JAMES. Thanks, Senator. I think it is important to remember how we ended up where we are. When we built the C–130H's, the newest C–130, we put it into the Guard and Reserve, and the Active kept the C–130E model. The newest fleets were in the Guard and Reserve. Then the C–130J came along and it was time to recapitalize the oldest C–130's which were in the Active force. That is why the C–103J went there first.

The C–130J buy ends at the end of this FYDP [Future Years Defense Program] essentially as we finish populating our Air Force Special Operations Command C–130J fleet. We believe that we need more C–130J's in the total force. We right now are building and have almost finalized the modernization plan for the entire fleet. We are doing this in conjunction with the Guard, the Reserve,

and the Active Duty. It is led by Air Mobility Command. Every State TAG [The Adjutant General] is going to be part of this review process and final affirmation of the plan. We will do the AMP [Avionics Modernization Program] increment 1 and 2 to do the near-term and the far-term navigation update, and then modernization of those C–130H models. As part of that plan, we will identify units at the back end of that modernization for increment 2 as ones that would probably be the best choice if we can generate funding for C–130J between now and that point in time in 2028 to start populating those squadrons with C–130J's wherever we can get the money to do it.

We need to modernize our 130 fleet. All these units are fantastic units and contributing routinely to the joint fight around the world.

Senator BLUMENTHAL. I agree totally. They are fantastic units. They are contributing greatly, and they need a modernized fleet. Thank you for making that point.

My time has expired, but if you have additional details, I would welcome them in written form. Thank you very much, General. Thank you, Madam Secretary.

Chairman MCCAIN. Senator Graham?

Senator GRAHAM. Thank you, General. Thank you very much for your service. Secretary James, thank you for coming.

Your favorite topic, the A–10. If you had all the money within reason in the world, would you keep the A–10 or would you want to retire it?

General JAMES. I would keep the A–10 and build a new low-threat CAS platform. I would replace the A–10 with it when it was fielding, and I would use the other money to build manpower to stand up the F–35 in the Air Force. We need the capability. We are stressed. We have been for 25 years. We are downsizing. That is what I would do, and I think it is a logical plan. We just do not have the money to do it.

Senator GRAHAM. I think that is the point. We are having all these fights about the A–10. But it is a budget-driven problem.

General JAMES. Sir, this is not about the A–10 at all. It is about having to make decisions. I find myself in an almost surreal position arguing to divest things I do not want to divest, to pay a bill we were handed in law, and we are not being allowed to pay it by the institution that passed the law.

Senator GRAHAM. What do you think is the biggest consequence of sequestration to the Air Force thus far?

General JAMES. My opinion. I will let the boss jump on here, sir.

But, Senator, my opinion is it is not really the mechanism of sequestration. That was a shock in 2013. It is more the Budget Control Act caps and how they have reset the sense of what is good in a budget. We are still $12 billion below what we had planned even four years ago for our budgets. All the force structure that we had in place in the Air Force at that time that we have had trouble divesting was based on a top line that was $12 billion to $20 billion per year more than what we are going to have going forward. We have to make some very difficult decisions to live within that top line.

Senator GRAHAM. If we go back to sequestration, what awaits us from an Air Force point of view?

General JAMES. Exactly what we saw in 2013, sir, decreased training, decreasing readiness, much more frustration on the part of our people. When they looked out windows at airplanes they could not fly, we had a problem with moral then. If we do that again, we will have a much bigger one than we did last time.

Senator GRAHAM. Is it affecting families?

General JAMES. I think it affects families' concern more than it directly affects families, to be fair. We have done a pretty good job of protecting family programs. But the tension associated with it, the concern about the future of their platform, their unit, their tasking affects everybody.

Senator GRAHAM. In your time in the military, have you ever seen more threats to the Homeland than you do today?

General JAMES. No, sir, not threats to the Homeland.

Senator GRAHAM. Secretary James, anything you want to add right quick?

Ms. JAMES. I would just add that every program that has been discussed here today is a good program, and it all comes down to money. Somehow if you have got to balance your books, as we have to submit a budget each year, you have to make choices about what you are going to invest in and what you are going to cut. None of the cuts are easy cuts. They all hurt some element of the force. Every single program pretty much that has been discussed here today falls into that category.

As the Chief said, we always ask at every juncture Congress to work with us. I know this committee has been leaders in this regard, but to convince everybody else that we have to lift sequestration permanently because, of course, it will come back to us in fiscal year 2018 if action does not occur.

Senator GRAHAM. The Russian rocket problem is not a sequestration problem. Is it?

Ms. JAMES. That is one and the contract strategy for the B–21 is one that we discussed here today. But most of the other issues I think have related to money.

Senator GRAHAM. Why do you think we have such fights with the Air Force in this committee? They seem to happen a lot.

Ms. JAMES. Well, these are lively discussions from our oversight committee and the people who are executing on the programs.

Senator GRAHAM. Does it make sense to you what we are trying to say about the Russian rockets—the committee?

Ms. JAMES. It certainly makes sense and I agree and I too want to get off the reliance of the RD–180 as quickly as possible.

General JAMES. Senator, can I make one comment?

Senator GRAHAM. Sure, absolutely. But tell me how does this movie end with the Russian rocket debate. But go ahead. I am sorry.

General JAMES. Well, let me slip back to the fight comment you made. I think the discussions we have, whether it is my discussion earlier with the chairman or it is any other discussions we have with members of the committee, come from the same passion for providing national security for this country.

Senator GRAHAM. It just seems that we fight more with the Air Force than anybody, and I am in the Air Force—or used to be, anyway. Still am in my own mind. Just take that back. I mean, we

got four branches of the service. We seem to tangle with you all more than anybody, and it is not that we do not respect the Air Force. I certainly do. It was one of the highlights of my life to have been a part of it.

But you promise us, Secretary James, that this rocket engine thing is going to end well, that Senator McCain will be pleased one day soon?

[Laughter.]

Ms. JAMES. I promise you we are working very hard on the problem. We are getting all of the analysis done, and I am sure at the end of the day, you know, we will get your guidance, your law that will pass. The new NDAA will settle it going forward.

Senator GRAHAM. Well, that will be a good day.

Thank you both. Thank you, General Welsh. You have provided really good leadership at a tough time for the Air Force. I sincerely mean that.

To all those who fly, flight, our job is to let you win. Thanks much.

Chairman MCCAIN. Well, to illustrate the point, I received a letter today after several months from Secretary James saying that concerning the Russian rocket, quote, assuming a Delta-Falcon phase two split buy, the pre-decisional Air Force estimate projects a cost in excess of $1.5 billion. This morning you said not $1.5 billion. You said $5 billion.

Ms. JAMES. I said somewhere between $1.5 billion and $5 billion, depending on the assumptions and when RD–180 access would stop.

Chairman MCCAIN. Actually I quote. Assuming a Delta-Falcon phase 2 split buy, the pre-decisional Air Force estimate projects a cost increase in excess of $1.5 billion. It does not mention $5 billion in this letter, Secretary James. I can read English.

Ms. JAMES. That figure of $1.5 billion assumes the block buy continues, that we still have RD–180's for the block buy. If there were a decision by Congress to break the block buy, to stop access to those RD–180's, that could create even larger costs. The $5 billion comes from the Mitchell study of about a year and a half ago.

Chairman MCCAIN. But you do not mention any of that in this letter.

Ms. JAMES. I am mentioning it today. It depends on assumptions.

Chairman MCCAIN. I am to disregard really the letter you sent to me that I have been waiting several months for. Maybe that helps explain some of the difficulties that we have.

This hearing is adjourned.

[Whereupon, at 11:34 a.m., the hearing was adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

THURSDAY, MARCH 10, 2016

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

U.S. STRATEGIC COMMAND, U.S. NORTHERN COMMAND, AND U.S. SOUTHERN COMMAND PROGRAMS AND BUDGET

The committee met, pursuant to notice, at 10:02 a.m. in Room SD–G50, Dirksen Senate Office Building, Senator John McCain (chairman) presiding.

Committee members present: Senators McCain, Inhofe, Wicker, Ayotte, Fischer, Cotton, Ernst, Tillis, Sullivan, Graham, Reed, Nelson, Manchin, Gillibrand, Blumenthal, Donnelly, Hirono, King, and Heinrich.

OPENING STATEMENT OF SENATOR JOHN MCCAIN, CHAIRMAN

Chairman MCCAIN. Good morning. The committee meets today to receive testimony on the posture of U.S. Northern Command, Southern Command, and Strategic Command to inform its review of the Defense Authorization Request for Fiscal Year 2017.

I'd like to extend our appreciation to the witnesses for their many years of distinguished service, and to the men and women of our military who defend our Nation every day.

Admiral Tidd, this is your first time testifying before the committee as the Commander of U.S. Southern Command [SOUTHCOM]. After nearly 2 months in command, I look forward to your assessment of the challenges within your area of responsibility, as well as your strategy to confront them. It's clear you face a daunting array of security and governance challenges in the region, yet SOUTHCOM continues to suffer from persistent resource shortfalls that undermine efforts to confront these challenges. I hope you will outline for the committee where you are being forced to accept the greatest risk as a result of these shortfalls. Of particular concern is the deteriorating situation in Central America, where feeble governance, endemic corruption, and weak security institutions are allowing transnational criminal organizations to operate with impunity. We, of course, must improve and adequately resource our drug interdiction strategy to combat these groups, but

we must also renew our efforts to combat the real driver of drug trafficking: the demand here at home. The demand for the drugs that these groups traffic—heroin, methamphetamine, and cocaine—is too high, and the profits too great, to dissuade these criminals from their illicit actions.

To be clear, the threat posed by these groups extends beyond the drugs they smuggle into our communities. The smuggling routes they control are also used to traffic weapons, bulk cash, and human beings. As your predecessor, General Kelly, testified before this committee, terrorist organizations could seek to leverage these same smuggling routes to move operatives with intent to cause grave harm to our citizens or even bring weapons of mass destruction into the United States.

On a more positive note, I'm interested in your assessment of the ongoing talks in Colombia and how you believe the United States can best support our partners as they enter a new and likely more challenging era. Colombia, once on the cusp of becoming a failed state, has emerged from decades of conflict as a stark example of what sustained U.S. support and engagement can achieve. It's vitally important that we continue to invest in our relationship during this critical period so as not to squander the extraordinary progress that has been achieved.

I'd like to take a moment to recognize the military servicemembers conducting detention operations at Guantanamo Bay. Too often in the course of debating the future of the detention facility, we lose sight of the remarkable men and women who serve honorably under extraordinarily difficult conditions. Admiral, please convey our deepest appreciation for their service and the professionalism they display each and every day on behalf of our Nation.

Admiral Gortney, I look to you for an update on the current state of United States-Mexican security cooperation and opportunities for our two nations to strengthen this vital partnership. While Mexico's efforts to combat transnational criminal organizations have resulted in notable successes by capturing or killing senior cartel leaders, such as El Chapo, the security situation remain highly volatile and continues to directly impact the security of our southern border. Heroin, largely produced in Mexico, continues to ravage communities all across the Nation and demands a renewed effort to combat this scourge, both in our seats and also at its source.

I also look forward to your assessment of the increasing threat posed to the Homeland by the development of advanced missile capability—of advanced missiles capable of carrying nuclear payloads by Russia, Iran, and North Korea.

Admiral Haney, the strategic threats to the United States and its allies have increased exponentially in just the few short years since you've taken the helm of Strategic Command. While nuclear, cyber, and counterspace threats generally have been on the rise, Secretary Carter's warning that, quote, "We're entering a new strategic era," has great implications for STRATCOM [U.S. Strategic Command]. Return to great power competition noted by the Secretary means that deterring Russia and China once again assumes primacy in your planning and operations. Whatever President Obama may have hoped for, the United States can no longer seek

to reduce the role of nuclear weapons in our national security strategy or narrow the range of contingencies under which we would have to consider their use. U.S. Strategic Command faces significant near- and longer-term challenges.

In about 15 to 20 years, U.S. nuclear submarines, ICBMs [intercontential ballistic missiles], air-launch cruise missiles, heavy bombers, and nuclear-capable tactical fighters will have to be withdrawn from operational service, having been extended well beyond their original service lives. Modernization programs are in place to replace these systems, but there is no slack left in the schedule. Today's Congress supports fully the modernization of the U.S. nuclear deterrent. Any reduction in funding over the next decade, however, could delay the development of these replacement systems, increasing strategic risk at a time when Russia and other countries continue to modernize their nuclear capabilities.

Russia, then, is your near-term challenge. Russia's aggression in Ukraine and destabilizing actions in Syria take place under a nuclear shadow. Russia has threatened our NATO allies with nuclear strikes, is developing a new nuclear ground-launch cruise missile capable of ranging most of Europe, and has fired air- and sea-launch cruise missiles against targets in Syria, missiles that could be armed with nuclear warheads and flown against European and United States targets.

Your task, Admiral Haney, is to ensure that strategic Command is prepared to deter Russian nuclear provocations. This requires better intelligence about Russian nuclear capabilities and plans, a nuclear planning process tied to EUCOM [European Command] and NATO operations, and a survivable, well-exercised, and ready nuclear force.

Finally, as this committee continues its review of the Goldwater-Nichols Act, we're interested to hear your views as to whether our defense enterprise is organized properly to perform the missions that cut across the functional and geographic boundaries we have drawn. We also welcome any ideas on reform we might consider to make our defense enterprise more effective without minimizing the vital tasks that must be done.

I noted, to the members of the committee, that yesterday we had an all-Army panel, and today it's an all-Navy panel, a definite upgrade.

[Laughter.]

Chairman MCCAIN. Senator Reed.

STATEMENT OF SENATOR JACK REED

Senator REED. Thank you, Mr. Chairman.

May I point out that the meeting of the United States Naval Academy Alumni Association will take place immediately following the hearing in the ante room.

[Laughter.]

Senator REED. Thank you, Mr. Chairman.

I want to welcome our witnesses, particularly Admiral Tidd, who's appearing before this committee for the first time. Thank you, sir, for your service.

Admiral Gortney, this could be your last hearing before the committee. Thank you for your extraordinary service in so many dif-

ferent capacities. Not only you, but your families, have served with great distinction and great sacrifice. Obviously, the men and women in your commands have done so much.

Admiral Haney, likewise to your family and to the men and women of your command.

I'm pleased to see some senior noncommissioned officers here. Thank you for what you do to lead our forces.

Admiral Haney, your command has responsibilities for the functions that are global in nature—space and nuclear, to name a few. But, your first and foremost responsibility is to ensure that the nuclear triad can deter threats that are existential to our Nation. This administration has committed to the modernization of all three legs of our triad. Our current nuclear forces cost about 4 percent of our DOD [Department of Defense] budget, which is a relatively good bargain, considering the threats they deter on a daily basis. But, in the late 2020s, as the Chairman has mentioned, when this modernization is at its peak, that figure will rise to about 7 percent of the DOD budget. While this is about half of what we spent at the height of the Cold War, it is still a considerable amount of money, and I will want to hear your views on the importance of this modernization and how it can be done in the most cost-effective manner possible.

Admiral Gortney, your mission is to protect the Homeland, to deter and defeat attacks on the United States, and to support civil authorities in mitigating the effects of potential attacks and natural disasters. While Admiral Haney is responsible for synchronizing global missile defense, planning, and operation support, you are responsible for the operation of our Homeland ballistic missile defense system. We look forward to hearing about the ongoing improvements to the ground-based missile defense system, particularly the enhancement of sensors and discrimination capabilities.

In addition, NORTHCOM [Northern Command] works closely with other Federal agencies, the Governors, and the National Guard to collaborate on responding to natural and manmade disasters, and partners with Canada and Mexico to promote security across our borders. I look forward to hearing about your current efforts in these areas and how these would be impacted by the return of sequestration next year.

A number of the problems in NORTHCOM originate from the SOUTHCOM AOR. Drug traffickers and transnational criminal organizations are not bound by geographic borders, and the violence and instability they engender have pushed individuals to flee, often seeking sanctuary on our shores. An obvious answer then is to address the problem at the root. Of course, such efforts require a whole-of-government approach, incorporating the capabilities of interagency partners, such as the State Department, FBI, and the Drug Enforcement Agency. Consequently, any cuts made to their budgets have direct implications on the ability, particularly, of SOUTHCOM [Southern Command] to carry out its mission.

SOUTHCOM is responsible for maintaining our security relationship in the region. The closest military-to-military relationship in the AOR [Area of responsibility] is with Colombia, who, with our sustained assistance, has undergone a remarkable transformation. It is now equally important to ensure that the peace implementa-

tion phase of this transformation is as robustly supported as the kinetic operations.

Admiral Tidd, as you stated in your testimony, nowhere is our own security more inextricably intertwined to that of our neighbors, partners, and friends than in Latin America, and the Caribbean. I look forward to hearing your views on how we can best maintain our engagement in this important area of the world.

Thank you very much, Mr. Chairman.

Chairman MCCAIN. Welcome the witnesses. Your complete statements will be made part of the record.

Admiral Haney.

STATEMENT OF ADMIRAL CECIL E. D. HANEY, USN, COMMANDER, U.S. STRATEGIC COMMAND

Admiral HANEY. Good morning, Chairman McCain, Ranking Member Reed, and members of the committee.

I'm honored to be here with you today and pleased to testify with Admiral Bill Gortney, Commander, U.S. Northern Command, Admiral Kurt Tidd, Commander, U.S. Southern Command. I'm also honored to represent my team of sailors, soldiers, airmens, and marines, and civilians who carry out the various missions assigned to U.S. Strategic Command. They are dedicated professionals who represent our most precious resource and deserve our unwavering support. As a result of their efforts, our Nation's strategic nuclear deterrent force remains safe, secure, effective, and ready, and we are working hard to improve the resiliency and flexibility in space and cyberspace.

It is critical, as you've stated, that we modernize our strategic nuclear deterrent capabilities that underpin our Nation's security. As you know, the current global security environment is more complex, dynamic, and uncertain than possibly anytime in our history as adversaries and potential adversaries challenge our democratic values and our security in so many ways. They are modernizing and expanding their nuclear capabilities, developing and testing counterspace and cyberspace technologies, and are advancing conventional and asymmetric weapons.

Future deterrent scenarios will likely include multiple adversaries operating across multiple domains and using anti-access aerial denial asymmetric warfare in "escalate to de-escalate" tactics. These trends affect strategic stability.

Given all of this, the missions of U.S. Strategic Command remain important to our joint military forces, to our Nation and our allies and partners. Comprehensive strategic deterrence and assurance and escalation control is far more than just nuclear weapons and platforms. It includes a robust intelligence apparatus, space, cyberspace, conventional and missile defense capabilities, and comprehensive plans that link together organizations in a coherent manner.

Additionally, we engage daily on a broad range of activities across our other mission areas, including intelligence, surveillance, and reconnaissance, combating weapons of mass destruction, joint electronic warfare, and analysis and targeting.

These guide my command priorities. Achieving comprehensive strategic deterrence, assurance, and escalation control requires a

long-term approach to investing in capabilities in a multi-generational commitment to intellectual capital. The President's Budget for fiscal year 2017 strikes a responsible balance between national priorities, fiscal realities, and begins to reduce some of the risks we have accumulated because of deferred maintenance and sustainment. This budget supports my mission requirements, but there is no margin to absorb new risk. Any cuts to that budget will hamper our ability to sustain and modernize our forces.

Thank you. I look forward to your questions.

[The prepared statement of Admiral Haney follows:]

PREPARED STATEMENT BY ADMIRAL CECIL E. D. HANEY

INTRODUCTION

Mr. Chairman and distinguished members of the committee, I am honored to be here today. Thank you for the opportunity to provide testimony on the posture of United States strategic forces, my assessment of the President's Fiscal Year 2017 Budget, and how United States Strategic Command (USSTRATCOM) is confronting today's complex global security environment. I am also pleased to be here with Admiral Bill Gortney, Commander of United States Northern Command; and Admiral Kurt Tidd, Commander of United States Southern Command. I thank you all for your continued support to our Nation's defense.

I have the privilege of leading a motivated team of strategic warriors focused on mission excellence. While today, the Nation's strategic nuclear deterrent force remains safe, secure, effective and ready, we are working diligently to improve the resilience, responsiveness, credibility and flexibility of our operational plans and capabilities. USSTRATCOM is focused on deterring strategic attack, providing assurance to our allies and partners, and providing warfighting solutions to other Combatant Commands and partners across the spectrum of operations. While executing our global responsibilities, we continue to forge enduring partnerships with agencies and organizations across the U.S. Government, academia, commercial industry, and Allied nations.

The momentum we have established is largely due to those who dedicate themselves to national security in spite of uncertainty and resource challenges: the soldiers, sailors, airmen, marines, and civilians who carry out and support our strategic missions. Thank you for the opportunity to publicly acknowledge their service, devotion and professional skill.

Over the last two years, I have gained considerable insight regarding the progress and work remaining to deliver comprehensive strategic deterrence, assurance and escalation control. My focus here is to provide clarity, make recommendations on required steps for continued success, and demonstrate how USSTRATCOM supports strategic stability and national security.

Much remains to be done to sustain and modernize the foundational nuclear deterrent force that we need to protect the Nation from existential threats in an increasingly uncertain and unpredictable environment. We must continue to meet critical investment timelines to ensure that aging platforms and weapons systems do not reach the point at which their viability becomes questionable.

The President's Budget offers a balanced approach to national priorities and fiscal realities, and reduces some accumulated risk as we pursue modernization across USSTRATCOM mission areas. The Bipartisan Budget Act of 2015 provided near-term fiscal stability for these critical missions, and we appreciate Congressional and White House support in this effort. I support continued bipartisan efforts to achieve long-term relief from the constraints imposed by the Budget Control Act of 2011, especially given the multi-year acquisition timelines required to modernize our strategic systems.

Maintaining and improving comprehensive strategic deterrence, assurance and escalation control requires a multi-faceted, long-term approach to investing in strategic capabilities and a renewed, multi-generational commitment of intellectual capital. As I look at trends in the security environment, continued long term investment is needed to ensure that current progress transitions into long-term success. Our allies and adversaries are observing and assessing the fiscal emphasis placed on our Nation's strategic deterrence and assurance capabilities. We cannot afford to send mixed messages on their importance by underfunding them.

GLOBAL SECURITY ENVIRONMENT

Today's global security environment is complex, dynamic and volatile; perhaps more so now than at any other time. The dangers presented by this unpredictable security environment are compounded by the continued propagation of asymmetric methods, the unprecedented proliferation of advancing technologies, and the increasingly provocative and destabilizing behavior by current and potential adversaries. Some nations are investing in long-term military modernization programs, including capabilities that could pose an existential threat to the United States. A number of others are developing, sustaining, or modernizing their nuclear forces, including weapons and platforms that are mobile, hardened and underground.

Russia. Russia warrants our attention. Its new security strategy makes clear that Russia seeks to re-assert its great power status. Russia is modernizing its conventional and strategic military programs, emphasizing new strategic approaches, declaring and demonstrating its ability to escalate if required, and maintaining a significant quantity of non-strategic nuclear weapons. Russia has engaged in destabilizing actions in Syria and Ukraine (Eastern and Crimea), while also violating the Intermediate-range Nuclear Forces (INF) Treaty, and other international accords and norms. Russia is also developing counter-space and cyber capabilities

Despite these activities, and assertions by some that the United States and Russia are in a nuclear arms race, there is continued adherence to the New Strategic Arms Reduction Treaty (New START) by both nations. In compliance with a series of treaties, the United States has reduced its stockpile by 85 percent relative to its Cold War peak. Instead of dozens of delivery systems, we now have four strategic delivery platforms. We seek no new military capabilities in our nuclear forces. Rather, we seek to retain and modernize only those capabilities needed to sustain a stable and effective deterrent capability. We are on track to achieve New START limits of 1550 deployed warheads and 700 deployed delivery systems by February 2018.

The benefit of New START is that it promotes stability by maintaining equivalency in nuclear weapon numbers and strategic capability. It also promotes transparency via inspections and helps assure our non-nuclear allies they do not need their own nuclear deterrent capabilities. However, to maintain strategic stability as we draw down to New START central limits, the remaining systems must be safe, secure, effective and ready.

China. In addition to pursuing regional dominance in the East and South China Seas, China continues making significant military investments in nuclear and conventional capabilities. China is re-engineering its long-range ballistic missiles to carry multiple nuclear warheads and continues to develop and test hyper-glide vehicle capability. China's pursuit of conventional prompt global strike capabilities, offensive counter space technologies, and exploitation of computer networks raises questions about its global aspirations. While China periodically reminds us of its "No First-Use" nuclear policy, these developments—coupled with a lack of transparency on nuclear issues such as force disposition and size—impact regional and strategic stability.

North Korea. North Korea's behavior over the past 60 years has been very problematic. Today, North Korea continues heightening tensions by coupling provocative statements and actions with advancements in strategic capabilities, including claims of miniaturized warheads; developments in road mobile and submarine launched ballistic missile technologies. Most recently, North Korea has conducted its fourth nuclear weapons test and another missile launch of a satellite into space, furthering its ICBM research. These actions show disdain for United Nations Security Council resolutions and a dangerous lack of regard for regional stability.

Iran. As Iran follows the mandates of the Joint Comprehensive Plan of Action, we must be vigilant to detect if Iran ever shifts its intentions to pursue a nuclear weapon. Iran continues to develop ballistic missiles and cyberspace capabilities—and we remain focused on countering its destabilizing activities in the region.

Violent Extremist Organizations (VEOs). Ungoverned or ineffectively governed regions remain incubators for those who seek to attack the world's peaceful societies. VEOs recruit and operate freely across political, social, and cyberspace boundaries. The effect of weapons of mass destruction (WMD) in the hands of VEOs could be catastrophic, and highlights the importance of our non-proliferation and counter WMD efforts.

In summary, the global strategic environment is increasingly complex. Unlike the bipolarity of the Cold War, today's multi-polar world with state, non-state, and mixed-status actors is more akin to multiplayer, concurrent and intersecting games of chess that severely challenge regional and global security dynamics. Future conflicts will not be contained within prescribed borders, stove-piped domains, or segregated areas of responsibility. We must view threats as transregional, multi-do-

main and multi-functional, requiring a comprehensive approach to strategic deterrence, assurance and escalation control.

USSTRATCOM IN THE 21ST CENTURY

USSTRATCOM counters diverse and complex threats through the execution of its fundamental mission: **to detect and deter strategic attacks against the U.S. and our allies, and to defeat those who attack if deterrence fails.** USSTRATCOM is assigned nine distinct responsibilities: **Strategic Deterrence; Space Operations; Cyberspace Operations; Global Strike; Joint Electronic Warfare; Missile Defense; Intelligence, Surveillance and Reconnaissance; Countering Weapons of Mass Destruction; and Analysis and Targeting.** These diverse assignments are strategic in nature, global in scope, and intertwined with Joint Force capabilities, the interagency process and the Whole-of-Government approach. **Each mission supports or is interconnected with the others, and their combined capabilities enable a comprehensive approach to strategic deterrence, assurance and escalation control in the 21st century.**

Deterrence is a fundamentally human endeavor, firmly rooted in psychology and social behavior. At the most basic level, deterrence is achieved through one of two mechanisms. The first is an aggressor's recognition that unacceptable costs may be imposed for taking an action and recognition that forgoing this action may result in lesser costs. The second is an aggressor's belief that the contemplated action will not produce its perceived benefit, or that not acting will produce a greater perceived benefit. These elements combine to convince potential adversaries that they will not succeed in an attack, and even if they try, the costs will far outweigh the benefits. USSTRATCOM's capabilities underpin these fundamental elements of deterrence.

Achieving comprehensive deterrence, assurance and escalation control requires nuclear weapons systems along with a robust intelligence apparatus; space, cyberspace, conventional, and missile defense capabilities; global command, control, and communications; and comprehensive plans that link organizations and knit their capabilities together in a coherent way.

Priorities. USSTRATCOM is guided by my six overarching priorities:

1. Deterring strategic attack against the United States and providing assurance to our allies. Strategic attacks can occur through a variety of means in any domain. They may impact many people or systems, affect large physical areas, act across great distances, persist over long periods of time, disrupt economic or social structures, or change the status quo in a fundamental way.

2. Providing the Nation with a safe, secure, effective and ready nuclear deterrent force. Foundational documents such as the 2010 Nuclear Posture Review, the 2013 Report on Nuclear Weapons Employment Strategy, the 2014 Quadrennial Defense Review (QDR), and the 2015 National Military Strategy have consistently repeated this mandate. I am committed to providing our Nation with a viable and credible nuclear deterrent force.

3. Delivering comprehensive warfighting solutions. To effectively deter, assure, and control escalation in today's security environment, threats must be surveyed across the "spectrum of conflict." Escalation may occur at any point, in varying degrees of intensity, with more than one adversary, in multiple domains, to include "below threshold activities" that would not ordinarily propel international action. Our actions and capabilities must convince any adversary that they cannot escalate their way out of a failed conflict, and that restraint is always the better option. Doing so requires a deeper, broader understanding of our potential adversaries, so that we can deny action; hold critical nodes at risk; and prevent activities, perceptions and misperceptions from escalating. We must also look at our military capabilities in a holistic manner, and fully integrate them within our other elements of national power. We must pursue a Whole-of-Government approach to deterrence, including allies and partners in our efforts, with ready forces in all domains.

4. Addressing challenges in space and cyberspace with capability, capacity and resilience. Space capabilities remain foundational to our way of life not only for the United States but for the international community at large. Yet some nation states are investing in counter-space capabilities. We must assure our continued access to space through improved space situational awareness, operating procedures, resiliency and other operational concepts central to our ability to maintain an advantage in space. Cyberspace underpins all of my mission areas and has become a critical facet of national power. We must continue to develop a robust Cyber Mission Force with the authorities, skills and resources to protect our DOD networks against a maturing set of cyberspace threats. Additionally, cyber defense of future networked systems must be a design priority.

5. Building, sustaining and supporting partnerships. We aim to work seamlessly with the other Combatant Commands, across the Federal Government, commercial sector, academia and with partners and allies to apply the scope of the USSTRATCOM portfolio toward a synchronized pursuit of national objectives. This robust interaction must occur at all levels at USSTRATCOM and includes operations, planning, exercising and wargaming.

6. Anticipating change and confronting uncertainty with agility and innovation. Sound decision-making requires thorough analysis to prioritize our activities with flexible, agile and adaptable thinking. This effort includes a variety of wargames, demonstrations and exercises to evaluate deterrence and escalation control options. We will support the DOD Defense Innovation Initiative and the associated Advanced Capability and Deterrence Panel's efforts. This will help us identify new operational concepts, develop cutting edge technology, and enable a continuing evolution of ideas on how to deter current and potential adversaries.

MISSION AREA CAPABILITIES & REQUIREMENTS

We must maintain a military capability that provides our leadership with the decision space to respond in the best interest of the United States. This includes the ability to mitigate current and future risk as it pertains to nuclear, space and cyberspace threats. Therefore, prioritizing resources to meet our requirements necessitates a thoughtful assessment of national priorities in the context of fiscal realities. The President's Budget supports my mission requirements, but there is no margin to absorb risk. Any cuts to the budget will hamper our ability to sustain and modernize our military forces, and will add significant risk to our strategic capabilities.

Nuclear Deterrent Forces

Today, America's nuclear forces remain safe, secure, effective and ready. For more than 70 years, thanks in part to our credible nuclear forces, the United States has deterred great power war against nuclear-capable adversaries.

Nuclear Triad. Our nuclear Triad is a requirement. The policy of maintaining a nuclear Triad of strategic nuclear delivery systems was most recently re-iterated in the 2014 QDR. Our Intercontinental Ballistic Missiles, Ballistic Missile Submarines, Air-Launched Cruise Missiles, and nuclear capable heavy bombers and associated tankers each provide unique and complementary attributes that together underpin strategic deterrence and stability—and each element is in need of continued investment. The Triad provides a hedge against technical problems or changes in the security environment and must consist of independently viable weapons systems and platforms which present adversaries with a complex, multi-pronged problem. The fiscal year 2017 budget request funds the Ground Based Strategic Deterrent program to replace our aging Minuteman ICBM fleet, which for decades have served to complicate an adversary's decision to launch a comprehensive counterforce strike on the United States. The fiscal year 2017 budget request funds the *Ohio*-Replacement Program to ensure the uninterrupted deployment of the Triad's most survivable leg. The Long Range Strike-Bomber, Long Range Stand-Off Cruise Missile, and B61–12 gravity bomb are needed to provide the flexibility, visibility and ability to forward-deploy and to support our extended deterrence commitments to our allies.

Intercontinental Ballistic Missiles (ICBMs). Our ICBM force provides a responsive, highly reliable and cost effective deterrent capability. To maintain an effective Minuteman III force through 2030, USSTRATCOM supports several near-term sustainment efforts, including ICBM Fuze Modernization, Launch Control Center Block Upgrade, and Airborne Launch Control System Replacement. Vital ICBM security improvements include a UH–1N Helicopter Replacement, Payload Transporter Replacement and ICBM Cryptographic Upgrade. Beyond 2030, the Ground Based Strategic Deterrent program is essential to recapitalize the ICBM force prior to Minuteman age out I fully support an integrated Ground Based Strategic Deterrent weapon system that recapitalizes flight systems, ground launch systems, command and control, and support equipment. I am encouraged by the ongoing Air Force and Navy effort to study the feasibility of sharing common technology between their respective programs in order to reduce costs and preserve the unique skills required to field capable ballistic missile weapon systems.

Ballistic Missile Submarines (SSBNs). Recapitalizing our sea-based strategic deterrent force remains my top modernization priority. The Navy's SSBNs and Trident II D5 ballistic missiles constitute the Triad's most survivable leg. The *Ohio*-class SSBN fleet is undergoing significant sustainment efforts to maintain our nation's required high operational availability and extend the life of the D5 ballistic missile. USSTRATCOM continues to strongly support and work with the Navy as

it modernizes the SSBN fleet. The *Ohio* Replacement SSBN, currently in development and expected to be fielded in 2031, will continue to serve as the Nation's survivable strategic deterrent into the 2080s. Despite a hull life extension from 30 to 42 years, the current *Ohio*-class will quickly approach the end of its effective service life. No further extension is possible. Any further delay will put the reliability of our sea-based nuclear deterrent at unacceptable risk. In addition, we must continue our commitment to the United Kingdom to develop and field the Common Missile Compartment to ensure both nations' SSBNs achieve operational capability to replace the existing platforms.

Heavy Bombers. Our dual-capable B–52 and B–2 bombers are the most flexible and adaptable leg of the nuclear Triad and provide significant conventional capabilities. Bombers play a key role in stabilizing and managing crises by providing a visible signaling option and rapid hedge against operational and technical challenges in other legs of the nuclear Triad. Ongoing and planned sustainment and modernization activities, to include associated Nuclear Command, Control and Communications upgrades, will ensure our bombers provide credible deterrent capabilities until their planned end-of-service-life. I fully support the Air Force program for fielding a new, highly survivable penetrating conventional and nuclear Long Range Strike Bomber (LRS–B). When coupled with a new Long Range Stand-Off (LRSO) cruise missile and the B61–12 gravity bomb, the LRS–B will provide the President with flexible options to address a range of contingencies in non-permissive environments. Maintaining an air-delivered standoff and direct attack capability is vital to meeting our strategic and extended deterrence commitments and denying geographic sanctuaries to potential adversaries. The new LRSO is needed to replace the aging Air Launched Cruise Missile (ALCM), which has far exceeded its originally planned service life, is being sustained through a series of service life extension programs, and is required to support our B–52 bomber fleet. Likewise, the B61–12 is needed to extend the life of aging gravity nuclear weapons and provide continued viability for both the B–2 strategic bomber and dual capable fighter aircraft supporting our NATO and extended deterrence commitments.

Foundational to the nuclear triad is a synthesis of dedicated sensors, assured command and control, nuclear weapons and their enabling infrastructure, treaties and non-proliferation activities.

Sensors. Indications and warning are necessary for maximum decision space, and strategic missile warning remains one of our most important capabilities. Along with persistent and tailored intelligence, our Integrated Tactical Warning and Attack Assessment network provides timely, accurate, unambiguous and continuous tactical early warning, allowing us to select the most suitable course of action in rapidly developing situations. While the Defense Support Program is nearing the end of its operational life, the Space-Based Infrared System program is on track to provide continuous on-orbit warning. The survivable and endurable segments of these systems, along with Early Warning Radars and nuclear detonation detection elements, are in urgent need of sustainment and modernization. We must continue to maintain legacy systems and address the ever-increasing risk to mission success. Prompt and sufficient recapitalization of these critical facilities and networks—to include electromagnetic pulse protection and survivable endurable communications with other nodes in the system—will be pivotal in maintaining a credible deterrent.

Nuclear Command, Control and Communications (NC3). All USSTRATCOM missions require robust global Command, Control, Communications, and Computer (C4) capabilities and infrastructure supporting the President's national-decision making process across a spectrum of scenarios. These communications capabilities are crucial to providing the President and his key advisors the right information to expand decision space. USSTRATCOM is teaming with the White House, national laboratories, and the private sector to develop a Global C4 system, setting the conditions for timely, informed National decision making anywhere on the globe. The Council on Oversight of the National Leadership Command, Control and Communications System has proven effective in synchronizing and prioritizing modernization efforts, and articulating those priorities to Congress.

Maintaining a credible nuclear deterrent for the long term requires recapitalization of key systems and capabilities throughout the NC3 architecture. The unpredictable challenges posed by today's complex multi-domain, multi-threat security environment make it increasingly important to optimize our aging NC3 systems architecture while leveraging new technologies. Maintaining nuclear deterrence and strategic stability requires a command and control architecture comprised of interdependent fixed and mobile systems and nodes that deliver capability throughout the space, air and land domains. Through continued funding for NC3 modernization programs, we can ensure effective command and control of the Nation's forces well into the future.

In space, we are transitioning from Military Strategic and Tactical Relay (MILSTAR) to Advanced Extremely High Frequency (AEHF) satellite communications systems. The AEHF satellite constellation system, coupled with requisite ground node and airborne platform Family of Advanced Beyond Line-of-Sight terminals (FAB–T) and the Presidential and National Voice Conferencing (PNVC) system, will extend enhanced capabilities to enable collaboration between the President and senior advisors under any circumstance and also assure connectivity with the nuclear forces.

Our efforts to field an air layer network supported by AEHF and a modernized Very Low Frequency/Low Frequency (VLF/LF) capability will increase resiliency and reliability across the NC3 architecture and begins to address the emerging threats to our space-based communications. I support the investment plan to replace our aging very low frequency receivers on the E–6B Airborne Command Post (ABNCP) and the E–4B National Airborne Operations Center (NAOC), providing assured, world-wide survivable communications into the future. Additionally, the Air Force continues to fund the very low frequency receiver on the B–2 bomber fleet, and began a program to install next generation protected, assured, and survivable communications on the B–2.

Within the land component, there are efforts underway to upgrade fixed and mobile warning systems to enable them to leverage the evolving Space Based Infra-Red System (SBIRS) capability. Progress has also been made on the construction of the new USSTRATCOM Command and Control (C2) Facility, which will support all our missions and will be a key component of our future nuclear and national C2 architecture. The C2 Facility, which is on track for occupancy in 2018, serves as a visible reminder to adversaries of the importance and national commitment to modernize our aging NC3 facilities.

Weapons and Infrastructure. Today's stockpile remains safe, secure, effective, and meets operational requirements. However, our nuclear weapons (now averaging 27 years of service) and supporting infrastructure (some of which date back to the Manhattan Project) are in dire need of modernization and life extension. Surveillance activities, Life Extension Programs (LEPs), and Stockpile Stewardship efforts are essential to mitigating age-related effects and incorporating improved safety and security features without a return to underground nuclear explosive testing. Continued talent pool investment with our nuclear scientists and engineers is also paramount to providing viability to our stockpile requirements.

As a member of the Nuclear Weapons Council (NWC), I work closely with my DOD and Department of Energy National Nuclear Security Administration (NNSA) counterparts to ensure we maintain a safe, secure, and effective nuclear stockpile. Active and sustained execution of the NWC's long-term "3+2" strategy to deliver three ballistic missile and two air-delivered warheads is crucial to addressing near-term technical needs and future capability requirements. W76–1 and B61–12 LEPs are on track and are necessary to maintain confidence in the reliability, safety and intrinsic security of our nuclear weapons. Additionally, early activities are underway to synchronize the LRSO cruise missile program with the W80–4 warhead LEP to ensure these programs are fielded in time to maintain a viable stand-off nuclear capability. The President's Budget ensures schedule alignment of the cruise missile and its associated warhead.

Treaties. International agreements such as New Strategic Arms Reduction Treaty (New START), the Open Skies Treaty (OST), and the Intermediate-range Nuclear Forces (INF) Treaty contribute to strategic stability through transparency, confidence building, and verification. The State Department has primary responsibility for treaty administration, and USSTRATCOM remains closely involved in their execution. While these agreements have served valuable roles in promoting strategic stability, treaty violations are a significant cause for concern.

In meeting treaty obligations, the United States Air Force has eliminated all non-operational intercontinental ballistic missile silos, and is placing 50 intercontinental ballistic missiles into a non-deployed status. All intercontinental ballistic missiles now carry only a single warhead. The Air Force has also eliminated non-operational B–52G series heavy bombers, and is converting 42 B–52H's to conventional-only bomber missions. Additionally, the United States Navy is sealing four launch tubes on each *Ohio*-class SSBN, removing 56 launch tubes from accountability under New START.

Budget. Sustaining and modernizing the nuclear enterprise infrastructure is crucial to maintaining a viable nuclear deterrent force. It is impressive to see today's systems working well beyond their expected service life, but we cannot rely on that indefinitely. Aging weapon systems and supporting infrastructure are stressing our ability to maintain a viable and credible force.

I share concerns about the cost of modernization, but the greater worry is the cost if we do not make needed investments. To reverse the long trend of flat or even declining resources, there must be a sustained, multi-decade investment program to our weapons, delivery systems and supporting infrastructure. As stated by the Congressional Budget Office, the expected cost of nuclear forces represents roughly 5 percent to 6 percent of the total costs of the planned defense budgets for the next ten years. The importance of the foundational nuclear deterrent force to national security, assurance to our allies, our non-proliferation objectives and strategic stability far outweigh the expense of recapitalization. Failing to provide the resources requested in the fiscal year 2017 budget request would delay the development of these programs and unacceptably degrade our credibility and ability to deter and assure. Our Nation must make this investment.

Space Operations

The U.S. must maintain assured access to space. Our national space capabilities allow us to globally navigate, communicate, and observe events in areas where non-space sensors are not feasible. Space capabilities are also a vital component of comprehensive deterrence and assurance and are critical to supporting our deployed forces and our national decision-making processes. Investment in these capabilities is vital to our national security. We greatly appreciate the continued support of Congress in helping to increase the resiliency and vitality of our space assets.

The space domain has increasingly become contested, degraded, and operationally limited. These are not new challenges. Some countries have clearly signaled their intent and ability to conduct hostile operations in space as an extension of the terrestrial battlefield. These operations would deny U.S. Forces the advantages of space, which have enabled us to favorably shape events in all corners of the globe.

In response to growing space threats, the DOD and Intelligence Community (IC) established the Joint Space Doctrine and Tactics Forum (JSDTF), which I co-chair with Ms. Betty Sapp, Director, National Reconnaissance Office. The JSDTF's goals are to ensure U.S. space policy, doctrine, operational concepts, strategies and planning scenarios reflect that space is a contested domain, populated by dynamic actors. We have already made significant improvements in the integration of exercises and wargames, and are revising associated joint doctrine, as well as new tactics, techniques and procedures for our space operators. The JSDTF will foster the transformation of how the U.S. operates in space by promoting seamless functionality between the DOD and IC—a tight bond we must continue to strengthen.

Another key initiative is the establishment of the Joint Interagency Combined Space Operations Center (JICSpOC) located at Schriever Air Force Base in Colorado. This center combines the efforts of USSTRATCOM, Air Force Space Command, and the intelligence community with a goal to create unity of effort and facilitate information sharing across the national security space enterprise. At its current phase, the JICSpOC is providing a robust location to conduct comprehensive operational experimentation. The JICSpOC will ensure the space enterprise meets and outpaces emerging and advanced space threats and will provide vital information for national leadership, allies, partners and the Joint Force. It will also serve to enhance the Nation's deterrent posture by demonstrating the United States is prepared when our space capabilities are threatened.

A component to all of these efforts is Space Situational Awareness (SSA)—the information that allows us to understand what is on orbit, where it is, where it is going, and how it is being used. Consistent with long-standing obligations and principles of the Outer Space Treaty and other international legal standards, our goal is to ensure space remains a safe domain for all legitimate users. Sharing SSA information and collaborating with other nations and commercial firms promotes safe and responsible space operations, reduces the potential for debris-producing collisions and other harmful interference, builds international confidence in U.S. space systems, fosters U.S. space leadership, and improves our own SSA through knowledge of owner/operator satellite positional data.

USSTRATCOM has negotiated SSA Sharing Agreements and Arrangements with 51 commercial entities, two intergovernmental organizations (EUMETSAT and European Space Agency), and ten nations (Spain, France, Italy, Japan, Australia, Canada, South Korea, United Kingdom, Germany, and Israel) and is in the process of negotiating additional agreements. Through these sharing agreements, USSTRATCOM assists partners with activities such as launch support; maneuver planning; support for satellite anomaly resolution, electromagnetic interference reporting and investigation; support for de-commissioning activities; and space object conjunction assessments.

The Geosynchronous Space Situational Awareness Program (GSSAP) achieved initial operational capability in October of 2015, and USSTRATCOM is now operating

GSSAP satellites to enable our cutting-edge SSA capabilities. GSSAP facilitates space-monitoring activities that contribute to global safety of spaceflight, as well as the peaceful access to space.

At the nucleus of USSTRATCOM's approach to space security is mission assurance—ensuring combatant commanders have required access to space-based capabilities. USSTRATCOM's Joint Functional Component Command for Space (JFCC–SPACE), located at Vandenberg Air Force Base in California, leads the effort, and through the Joint Space Operations Center (JSpOC), executes continuous and integrated military space operations and routinely tracks thousands of space objects in orbit around the Earth. This includes more than 1,300 active satellites operated by approximately 60 nations and a wide variety of government, commercial, and academic organizations. The JSpOC also maintains the catalog of all artificial Earth-orbiting objects, charts preset positions for orbital flight safety, and predicts objects reentering the Earth's atmosphere.

We must sustain judicious and stable investments to preserve the advantages we hold in this complex environment. Examples include the Space Fence program which will greatly expand the capacity of the Space Surveillance Network; investments in modeling and simulation that will increase our understanding of the space environment and adversary capabilities; and funding for satellite communications that are resistant to interference. We must also continue to seek innovative and solutions with Allies and our commercial partners to ensure access to space operations remains available. These include active and passive protection measures for individual systems and constellations, and a critical examination of the architectural path we must follow to ensure resilience and affordability in our space capabilities.

Cyberspace Operations

This year will mark the sixth anniversary of United States Cyber Command (USCYBERCOM). USCYBERCOM imparts an operational outlook and attitude to the management of the DOD's approximately seven million networked devices and 15,000 network enclaves.

Our primary focus for cyberspace operations within DOD is building the capability and capacity to protect DOD networks, systems, and information; defend the nation against cyberattacks; and support operational and contingency plans. The Cyber Mission Force (CMF) construct addresses the significant challenges of recruiting, training and retaining people, in addition to acquiring the facilities and equipment necessary for successful cyberspace operations. We are creating 133 cyber mission teams manned by more than 6,000 highly trained people by the end of fiscal year 2018. To date, 84 of those teams are fielded and assigned to a variety of missions, including our ongoing efforts to degrade, dismantle, and ultimately destroy ISIL. These teams support combatant commands and national missions. Budget stability is crucial to achieving this vision.

On 30 September 2015, the Secretary of Defense and the Chairman of the Joint Chiefs of Staff signed the DOD Cybersecurity Culture and Compliance Initiative (DC3I), tasking USSTRATCOM and USCYBERCOM to lead implementation. DC3I fosters long-term improvement through training, inspections, reporting and accountability. Improving our cybersecurity culture requires a holistic approach that addresses people, processes, and technology. Such efforts will continue to be critical to defending our DOD networks.

Global Strike

USSTRATCOM's Joint Functional Component Command for Global Strike (JFCC–GS) operates from Offutt AFB, Nebraska. JFCC–GS provides a unique ability to command and control our global strike capabilities and build plans that rapidly integrate into theater operations. This includes integration of combat capability associated with kinetic and non-kinetic effects.

Conventional Prompt Global Strike (CPGS) capability offers the opportunity to rapidly engage high-value targets without resorting to nuclear options. CPGS can provide precision and responsiveness in Anti-Access/Area Denial environments while simultaneously minimizing unintended military, political, environmental or economic consequences. I support continuing research and development of CPGS capabilities.

Missile Defense

Ballistic missile proliferation and lethality continues to increase as countries acquire greater numbers of ballistic missiles, increase their ranges, and incorporate countermeasures. North Korea possesses the Taepo Dong 2 space launch vehicle/ICBM, and has displayed the KN08 road-mobile ICBM that is likely capable of reaching much of the continental United States. North Korea also possesses hundreds of Short- and Medium-Range Ballistic Missiles capable of threatening South

Korea, Japan, and forward-deployed United States forces in Eastern Asia and the Western Pacific. Iran's ballistic missile capability also presents a significant challenge to United States interests in the Middle East. Iran's overall defense strategy relies on a substantial inventory of ballistic missiles capable of striking targets throughout Southwest Asia and parts of Europe.

Accordingly, effective missile defense is an essential element of the U.S. commitment to strengthen strategic and regional deterrence against states of concern. The Ground Based Midcourse Defense (GMD) system protects the United States Homeland against a limited ICBM attack from North Korea and potential future threats from Iran. However, continued investment in three broad categories is required to lower costs and improve our capabilities against growing threats: 1) persistent and survivable sensors, 2) increased inventories of Ground Based Interceptors (GBI) with improved performance and reliability and 3) increased regional capability and capacity. These needs can be addressed by the continued funding of priority programs such as: Long-Range Discrimination Radar (LRDR), Redesigned Kill Vehicle (RKV), Aegis Ballistic Missile Defense, Terminal High-Altitude Area Defense follow-on, Overhead Persistent Infra-Red sensors, Upgraded Early Warning Radar, and Joint Tactical Ground Stations. Collectively, these improvements increase interceptor effectiveness and lower costs to defeat threats.

We have made significant progress in reaching our missile defense goals. To enhance Ballistic Missile Defense System (BMDS) sensors and discrimination, we are using available technology to improve sensors, battle management, fire control and kill vehicles, while fielding LRDR to improve tracking and discrimination for Homeland defense against Pacific theater threats. We are also increasing the number of GBIs from 30 to 44 by the end of 2017. Upgrades continue to improve GBI fleet reliability, and the development of the RKV began last year with deployment expected in approximately 2020. The RKVs will be more reliable, cost-effective, and easier to produce.

The European Phased Adaptive Approach (EPAA) contributes to the defense of our deployed forces in Europe and our European NATO Allies. EPAA Phase 1 was achieved in December 2011. Phase 2 is going through testing and integration and we expect it to achieve operational capability in Spring 2016. Phase 3 remains on schedule to be operational in the 2018 timeframe and will provide defensive coverage against medium- and intermediate-range threats with the deployment of a second Aegis Ashore site in Poland and an upgraded SM–3 Block IIA interceptor. The EPAA continues to be interoperable with NATO's Ballistic Missile Defence system.

While significant investments in intercept technology have increased our missile defense capability, much work remains. Increases in the quantity and quality of threats increase the risk that adversary missiles will penetrate our defenses and reach their intended targets. We are working with the Joint Integrated Air and Missile Defense Organization, the Missile Defense Agency and industry partners to explore improvements to the current BMDS. We must also examine the potential to prevent attacks by countering threats prior to launch. Efforts to defeat missile threats across the launch spectrum rely on awareness and warning and must be based on actions that are synchronized within a fully integrated missile defense architecture to maximize our limited defensive capacity.

Countering Weapons of Mass Destruction (CWMD)

The U.S National Security Strategy states "there is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists." The DOD Strategy for CWMD also affirms that the pursuit of WMD and potential use by actors of concern pose a threat to U.S. national security and stability around the world. As DOD's global synchronizer for CWMD planning efforts, USSTRATCOM supports this strategy by leveraging the expertise resident in our Center for Combating Weapons of Mass Destruction (SCC–WMD), the Standing Joint Force Headquarters for Elimination (SJFHQ–E), and our partners at the Defense Threat Reduction Agency (DTRA)—all located at Ft. Belvoir, Virginia. Together our organizations conduct real-world and exercise CWMD activities with the other combatant commands to identify, prioritize, and mitigate WMD risks posed by the proliferation of WMD technology and expertise to nation-states and non-state actors.

To execute the DOD Strategy for CWMD, we have identified a need for comprehensive situational awareness that incorporates collaborative tools, continuously assesses the WMD threat, and provides a holistic awareness of the WMD environment. This capability would provide an enhanced awareness of emergent catastrophic-scale WMD threats that require collaboration across the interagency and partner nations. There is also an urgent need to update agent defeat weapon sys-

tems and develop modeling and simulation to assess collateral damage during WMD weapon attacks. USSTRATCOM is working closely with DTRA to resolve modeling and simulation shortfalls and ensure that cutting-edge technology is applied to WMD consequence.

The National Strategic Research Institute (NSRI) at the University of Nebraska, a University Affiliated Research Center in partnership with USSTRATCOM and the DOD, is providing our nation with cutting-edge mission-essential research and development capabilities in Combating Weapons of Mass Destruction (CWMD). The NSRI experienced another successful year conducting scientific research to help ensure preparedness for WMD threats.

Joint Electronic Warfare / Joint Electromagnetic Spectrum Operations

The electromagnetic spectrum (EMS) reaches across geopolitical boundaries and domains, and is tightly integrated into the conduct of commerce, governance and national security. Commercial demand for spectrum access results in increased pressure on bandwidth traditionally used for military operations. Additionally, our potential adversaries are actively pursuing capabilities to contest our use of the EMS.

Joint Electromagnetic Spectrum Operations (JEMSO) strengthens U.S. national objectives and enables the combat capability of the Joint Force by ensuring access to the EMS while denying adversaries the same. USSTRATCOM is developing JEMSO policy and doctrine, addressing capability gaps across the DOD, and working closely with the Combatant Commands, Services and other U.S. Government agencies through advocacy, planning and training.

Intelligence, Surveillance, & Reconnaissance (ISR)

The demand for ISR has outpaced our ability to meet all needs. At the same time, we are focused on increasing the effectiveness and persistence of ISR capabilities while reducing business costs. Located at Joint Base Anacostia-Bolling, Washington, DC, USSTRATCOM's Joint Functional Component Command for ISR (JFCC–ISR) is working with the Joint Staff, Services, Combatant Commands and the Intelligence Community to improve the management of DOD's existing ISR capabilities. I fully support maximizing the agile use of the capabilities we have, while also enhancing allied and partner contribution and cooperation. These efforts are designed to increase the persistence of our ISR capabilities, reduce the risk of strategic surprise, and increase our ability to respond to crises.

Targeting and Analysis

Targeting requires dedicated analysis. USSTRATCOM's Joint Warfare and Analysis Center (JWAC) in Dahlgren, VA enhances our Strategic Deterrence and Global Strike missions by providing unique comprehensive analysis. JWAC's ability to solve complex challenges for warfighters—using a combination of social and physical science techniques and engineering expertise—is invaluable to protecting the Nation and helping the Joint Force accomplish its missions.

OUR PEOPLE

People remain our most precious resource and deserve our unequivocal commitment to their well-being. Just as we sustain and modernize our platforms and weapons, we must sustain and modernize our workforce. Maintaining a talent pool of nuclear scientists and engineers is also paramount to providing viability to meet our stockpile requirements. Likewise, investing in the future of the professionals who operate, maintain, secure, and support our nuclear enterprise is critical. Tomorrow's leaders must have the ability to stretch their intellect well beyond one-dimensional problems. They must be able to operate in a multi-dimensional environment with multiple activities taking place simultaneously.

My visits throughout the past year confirmed my belief that we have an outstanding team in all of our mission areas. I am honored to lead such a focused, innovative and professional group dedicated to delivering critical warfighting capabilities to the Nation. Whether they are underwater on an SSBN, underground in a Launch Control Center, in the air on a bomber, or supporting missions from cyberspace to outer space, these great Americans do all they can for our Nation.

CONCLUSION

Achieving strategic deterrence, assurance and escalation control will require a multi-faceted, long-term approach to investing in strategic capabilities and a renewed commitment to sustaining intellectual capital. The sustainment and recapitalization of our Nation's strategic capabilities is sorely needed and must not be delayed.

In today's uncertain times, your support, combined with the hard work of the exceptional men and women of United States Strategic Command, will ensure that we remain ready, agile and effective in deterring strategic attack, assuring our Allies and partners, and addressing current and future threats.

Chairman MCCAIN. Admiral Gortney.

STATEMENT OF ADMIRAL WILLIAM E. GORTNEY, USN, COMMANDER, U.S. NORTHERN COMMAND AND COMMANDER, NORTH AMERICAN AEROSPACE DEFENSE COMMAND

Admiral GORTNEY. Chairman McCain, Senator Reed, distinguished members of the committee, it's an honor to be in front of you here today with my longtime shipmates, Admiral Cecil Haney and Admiral Kurt Tidd.

First off, I'd like to thank you for the 2-year budget relief to sequestration. Last year, I talked about sequestration being the biggest threat to national security. The Bipartisan Budget Act of 2015 is a much appreciated step in the right direction, and we all look forward to a more permanent solution in the future.

I also appreciate the time many of you have spent with me over the past two weeks. From our discussions, I believe our time is spent—best spent if I quickly summarize the range of significant threats to the Homeland, because I agree with DNI [Director of National Intelligence] Clapper when he told your committee last month, "Unpredictable instability has become the new normal."

I look at threats to the Homeland from those most dangerous to most likely. On the most dangerous, the nation-states: Russia, China, North Korea, where the peninsula is more unstable than it's ever been since the Armistice, and, of course, Iran. Non-state actors: Daesh, and, in the future, whatever adaptation Daesh will morph into. Then transnational organized crime who move product—drugs, humans, weapons, or anything that will make them a profit, exploiting the many seams between the nations in North, Central, and South America, the seams between the many agencies of the Governments of those nations, the seams created by the inadequate authorities, resources, and training of many of those agencies in those nations, and, yes, the seams created by the geographic boundaries of our combatant command structure, seams for which Kurt Tidd and I are accountable to close while we work the military-to-military effort of our Nation's whole-of-government approach to the many shared challenges within North, Central, and South America.

The number-one priority of the Department and NORAD [Northern American Aerospace Defense Command] and NORTHCOM is Homeland defense. It's a no-fail mission, and it's just as important today as when NORAD and NORTHCOM were established, with one single commander responsible for the defense of our Homeland through the many domains of air, space, maritime, land, and cyber, although, within cyber, our responsibility extends only as far as defending our own networks.

Today's evolving and resurgent threats are a function of the return-to-great-power competition and the continuing global terrorist threat. These threats create vulnerabilities best mitigated through an integrated and binational approach across the multiple domains, which requires a fully integrated defense in the air, space,

sea, and land domains. As a result, together NORAD and NORTHCOM have evolved well past our Cold War and 9/11 origins, and are today inseparable. We defend the Homelands in the air through the NORAD, and the remaining domains through NORTHCOM, facing the traditional and nontraditional threats in our assigned battlespace. NORAD and NORTHCOM work seamlessly together in defense of our Homeland. We're focused on complete unity of command and unity of effort. We are two commands, but a single, fully-integrated headquarters organized and trained to face the diverse array of evolving threats to our Nation's security.

Outside the traditional military threat and again created by the return-of-great-power competition is the nontraditional threat to the Homeland. To counter this threat, I'm a supporting commander to the Department of Homeland Security, the Department of Justice, and the many law enforcement agencies engaged in this crucial fight. Here, my primary concern are homegrown violent extremists who are self-radicalized and are in the receive-only mode and not actively communicating back to Daesh. These extremists are targeting SOF [Special Operations Forces], Department of Defense personnel and facilities, and our own fellow citizens. This is what occurred in Chattanooga on a DOD facility and in San Bernardino against our Nation's civilian population. As the commander accountable for setting the force-protection condition of DOD facilities in the continental United States, we at NORTHCOM work closely with the Army, Navy, Air Force, and Marine Corps in order to balance the enduring nature of this threat with the services' ability to complete the many missions they have here in the Homeland.

In closing, I want to mention our Homeland partnerships that enable our success. We partner continuously with the numerous interagency components of the government. These include the National Guard, both airmen and soldiers, the intelligence community, law enforcement agencies, and our closest mission partner, the Department of Homeland Security. Our mission partners maintain nearly 60 liaison officers in our headquarters, and these patriots are fully embedded into our ops and our intel organization.

Building partnership capacity within the Homeland is absolutely vital to our mission. At NORTHCOM, 70 percent of our major exercise—and this is nearly 200 each year—are focused on our mission partners as the primary target audience of the exercise programs. We call this Theater Security Cooperation within the Homeland. This is NORTHCOM supporting our mission partners, and our mission partners supporting us, which is why we view these Homeland partnerships as our center of gravity, as they are critical to the success across all of our assigned mission areas.

Thank you for giving me the opportunity to speak, and I welcome your questions.

[The prepared statement of Admiral Gortney follows:]

PREPARED STATEMENT BY ADMIRAL WILLIAM E. GORTNEY

INTRODUCTION

Chairman McCain, Ranking Member Reed, and distinguished members of the Committee, I appreciate the opportunity to appear before you today to discuss the

posture of United States Northern Command (USNORTHCOM) and North American Aerospace Defense Command (NORAD). I am here representing the Commands' soldiers, sailors, airmen, marines, coast guardsmen, national guardsmen, reservists, and civilians safeguarding our nation amidst the most diverse and challenging security atmosphere in our history. Brave men and women are confronting this rapidly changing defense environment head-on. It is an honor and a privilege to serve alongside them and I am grateful to the Committee for the support you provide.

North America is increasingly vulnerable to a vast array of evolving threats—from highly capable, national powers to disaffected individuals who act in response to extremist propaganda. These threats are growing and becoming much more diffuse and less attributable. Moreover, I believe that many of the crises originating as regional conflicts elsewhere in the world are rapidly manifesting themselves here at home and they continue to challenge our ability to warn and defend.

The complexity and volatility of our strategic environment demands that we advance and sustain the capabilities to protect our Homelands. I believe the President's fiscal year 2017 budget represents a balanced approach to maintaining our strategic advantage within the realities of a fiscally-constrained environment. We are still feeling the impacts of sequestration, primarily because the majority of the Services' cuts were from the operations and maintenance accounts, which directly impedes their ability to provide trained and equipped servicemembers to Combatant Commands. I thank the Committee for your support in passing the Bipartisan Budget Act of 2015, which represents another important step toward permanent relief from the sequestration caps in the Budget Control Act of 2011.

We are resolute in our commitment to deter, prevent, and defeat attacks against the United States and Canada. We stand ready to provide rapid and robust support to the primary lead agencies responding to domestic disasters and the law enforcement agencies (LEAs) charged with combating transnational organized crime. We continue to strengthen our regional and Homeland partnerships; they are our center of gravity.

STRATEGIC ENVIRONMENT

The expansive complexity of the contemporary security environment makes defending the Homeland a continual challenge. The spectrum of threats to our national security ranges from traditional nation-state military capabilities to individuals with access to increasingly destructive technologies. The diffusion of capability, the inexact art of predicting intent, and the complications of attribution all contribute to a blurring of lines between traditional military threats and asymmetric threats that trigger military support or response. Technological advances and proliferation coupled with pockets of instability will generate a growing array of potential threats against which we must posture ourselves. Many of our potential adversaries are pursuing advanced weapons development not seen in decades. Individually, they pose serious concerns to our national security and the international community. Collectively, they represent a vast spectrum of complex and volatile threats that I believe will only continue to grow and threaten the Homeland if we hesitate to act decisively.

RUSSIA

A resurgent Russia continues to assert itself on the world stage. No longer content merely to pursue primacy within its near abroad, Russia's forays into Syria highlight Vladimir Putin's willingness to employ military power to advance his agenda outside Russia's near abroad. Last year I stated that Russia is progressing toward its goal of deploying long-range, conventionally armed cruise missiles comparable to Western systems. In 2015 these efforts came to fruition, as Russia employed heavy bombers, surface vessels, and a submarine to launch advanced conventional cruise missiles at targets in Syria. These operations served as a proof-of-concept for weapons systems and tactics ultimately intended to provide flexible deterrent options in a future crisis.

Russia's strategic nuclear forces remain the only foreign military threat that could imperil our nation's existence, and Moscow continues to spend significant resources to modernize its nuclear arsenal and delivery systems. While Russia seeks to avoid a strategic conflict with the United States, Moscow perceives itself to be threatened by a coordinated Western effort to erode its sovereignty, weaken its economy, and undermine its regime. I am concerned these threat perceptions could prompt Russia's leaders to misinterpret our intentions in a crisis, leading to inadvertent escalation.

CHINA

As part of its long-term, comprehensive military modernization program, China continues to modernize and expand its strategic forces with a focus on improving its ability to survive a first strike and penetrate United States' missile defenses. Concerned that that United States precision strike and missile defense capabilities undermine its strategic deterrent, Beijing is working to improve the survivability of its nuclear force to ensure a credible second-strike capability.

China continues to supplement its modest silo-based intercontinental ballistic missile (ICBM) force with a growing number of road-mobile ICBMs and is now in the process of operationalizing its first viable class of ballistic missile submarines, which, if successful, would be China's first sea-based strategic nuclear deterrent. China is also developing a range of anti-access and area-denial weapons which, along with its cyber, counter-space, and strategic nuclear capabilities, are designed to discourage United States intervention in a regional crisis. Meanwhile, Beijing's diplomatic strategy appears to be focused on limiting United States options by denying physical and political access in key regions around the globe.

NORTH KOREA

North Korea's recent hostile cyberspace activity, nuclear testing, and continued ballistic missile development represent a dangerous threat to our national security. North Korea's recent nuclear test and satellite launch demonstrate Kim Jong Un's commitment to developing strategic capabilities, as well as his disregard for United Nations Security Council resolutions. The regime's efforts to develop and deploy the road-mobile KN08 ICBM have profound implications for Homeland missile defense, primarily because the missile obviates most of the pre-launch indicators on which we have traditionally relied to posture our defenses. While the KN08 remains untested, modeling suggests it could deliver a nuclear payload to much of the Continental United States. We assess Kim Jong Un is unlikely to attack our Homeland unless he perceives an imminent threat to his regime's survival. However, we are concerned the possession of a nuclear ICBM could embolden the regime's intransigence below the nuclear threshold and complicate our response to a crisis on the peninsula. While I do not believe that North Korea's efforts to develop a submarine-launched ballistic missile represent a near-term threat to the United States Homeland, the program underscores the level of effort and resources the regime is willing to devote to developing advanced weapon systems. As the combatant commander charged with defending the Homeland, I take this threat very seriously, particularly in light of North Korea's unpredictable leadership.

IRAN

Iran poses multiple significant security concerns to the United States, and I remain wary of its strategic trajectory. Last year's conclusion of the Joint Comprehensive Plan of Action was a welcome development, but, Iran's continuing pursuit of long-range missile capabilities and ballistic missile and space launch programs, in violation of United Nations Security Council resolutions, remains a serious concern. Iran has successfully orbited satellites using a first-generation space launch vehicle and announced plans to orbit a larger satellite using its ICBM-class booster as early as this year. In light of these advances, we assess Iran may be able to deploy an operational ICBM by 2020 if the regime choses to do so. Additionally, Iran has invested in developing advanced offensive cyberspace capability and has demonstrated cyberspace operations that could threaten our critical civil infrastructure.

VIOLENT EXTREMISTS

In addition to the challenges posed by global and regional powers, a more insidious threat comes from extremists who undermine our national security through radicalization and violence. Here in the Homeland, we face a pernicious terrorist threat from the self-proclaimed Islamic State of Iraq and the Levant (ISIL), which I choose to refer to as Daesh. Their sophisticated and robust social media campaign is motivating citizens to do harm to fellow citizens. Daesh has a strong recruiting narrative amplified by abundant attention in traditional and social media, which can resonate amongst disaffected Westerners. The tragic attacks in Chattanooga and San Bernardino underscore the difficulty intelligence and law enforcement face in detecting Homegrown Violent Extremists (HVEs) who do not show outward, reported signs of radicalization prior to an attack.

Meanwhile, we remain attuned to the potential for foreign terrorist organizations to conduct more complex, directed attacks in North America. al Qaeda and Daesh have communicated their intent to attack North America, and Daesh demonstrated

its capability to conduct horrific, large scale attacks with the November 13th attacks in Paris. In addition, we have observed a continued focus on aviation targets, most notably by the probable bombing of a Russian airliner over the Sinai Peninsula in November. While much work needs to be done, since 9/11, our law enforcement partners and the wider Intelligence Community have vastly improved procedures to deter or prevent similar coordinated attacks, but terrorists are constantly adapting. We are prepared to support civil authorities when asked if a complex or large-scale attack were to take place.

TRANSNATIONAL ORGANIZED CRIME

Transnational Organized Crime (TOC) presents a dangerous and highly sophisticated threat to the United States and a challenge to global stability. Transnational Criminal Organizations (TCOs) exploit infrastructure, corrupt officials, challenge societal norms, and are responsible for attacks on law enforcement and innocent civilians. TCOs represent the principal suppliers of illicit drugs into the Homeland and the trafficking of precursor chemicals for use in illicit drug production. TOC erodes the rule of law through extortion, violence and other illicit activity, which creates a security vulnerability that could be exploited by state and non-state actors.

LINES OF OPERATION

In my statement to this Committee last year, I described the unique aspects of USNORTHCOM as the nation's Homeland geographic combatant command (GCC) and NORAD as the nation's oldest bi-national command. I explained the importance of prioritizing our complementary and individual functions with a focus on our shared end states. Our key Lines of Operation are more critical than ever to our mission success. We map all of our activities to these Lines of Operation, which shape our activities and effort.

USNORTHCOM and NORAD Lines of Operation

- Defense of our Homelands
- Defense Support of Civil Authorities
- Homeland Partnerships
- Regional Partnerships
- The Arctic
- Professionalism and Excellence
- Warfighters and Families

DEFENSE OF OUR HOMELANDS

As the Commander of USNORTHCOM and NORAD, my primary task is to defend the Homelands. *Defense of our Homelands* is our dominant line of operation, and it is the core focus of USNORTHCOM and NORAD primary missions. We are ever mindful of the supreme responsibility we have of defending the security of the United States, our citizens, and our allies and partners. In 2015, we celebrated NORAD's 57th year defending North America against attack through our no-fail aerospace warning and aerospace control missions. NORAD was born in the Cold War and expanded to an internal threat focus after 9/11. By contrast, USNORTHCOM was born in the aftermath of 9/11 and shaped by the seminal nature of those attacks. Both Commands are ever-adapting within the strategic environment, and we work hard to develop our capabilities to outpace threats.

MISSILE DEFENSE

USNORTHCOM's most prominent Homeland defense mission is *Ballistic Missile Defense (BMD)*. Currently, our BMD architecture is designed primarily to defend against limited long range ballistic missile attacks from North Korean and Iran. In light of an evolving threat and the increasingly enigmatic and unpredictable nature of North Korea's dictator, Kim Jong Un, I believe it is imperative that the United States continue to develop more capable forces and broader options for effective ballistic missile defense. Our BMD architecture is comprised of a group of independent, yet interrelated components that form a complex and unified defensive network. This system of systems cannot be modernized and maintained sequentially; each component must be improved concurrently to outpace the evolving threat. I agree with and support the modernization priorities set by Vice Admiral Jim Syring and his team at the Missile Defense Agency (MDA), including improvement in our discrimination sensors, lethality of our kill vehicles, sustainment of the BMD architec-

ture, and development of our kinetic and non-kinetic options. I am grateful to this committee for your support and commitment to modernizing our Ballistic Missile Defense System (BMDS).

We are on the right path to improving our sensors through the development and deployment of the new Long Range Discrimination Radar (LRDR). This critical mid-course sensor is expected to provide persistent sensor coverage and vastly improve our target tracking and discrimination capability. The LRDR will help us evaluate our countermeasure options and increase the capability of our Ground Based Mid-course Defense (GMD) interceptors.

We remain on track to deploy the final 14 interceptors in Alaska, which will give us 44 missiles in the ground by the end of 2017. Finishing the inventory is a big step toward the robust BMDS of the future, but it is critical that we not stop there. We need to continue working on enhancements to the current Exo-atmospheric Kill Vehicle (EKV), and investments in the future Redesigned Kill Vehicle (RKV). We need to invest in the lethality of our kill vehicles, and in ways to get us to the right side of the cost curve. Our adversaries are developing relatively inexpensive technologies, which we assess can reach the Homeland. By contrast, our interceptors are vastly more expensive. Today, our BMDS is in an unsustainable cost model, which has us postured to shoot down inexpensive rockets with very expensive ones.

I believe that Homeland defense is fundamentally an "away game", and missile defense is no exception. Today's GMD system is designed to intercept incoming threats after the launch is initiated. While that approach offers us sufficient decision space, we need to augment our defensive posture with one that is designed to defeat ballistic missile threats in the boost phase as well as before they are launched, known as "left of launch." In concert with our public and private stakeholders, MDA is working on an emerging technology that will enable us to employ non-kinetic methods to defeat ballistic missile threats when we receive indications that a launch is imminent. I believe this technology will reduce the overall cost of engagement-based missile defense and provide us options to defeat ballistic missiles that continue to proliferate around the world.

We work closely with other GCCs, functional combatant commands, and partner nations to leverage capabilities that enable us to protect the Homeland. Thanks to agreements with the Government of Japan, United States Pacific Command (USPACOM) was able to deploy a second Army Navy/Transportable Radar Surveillance and Control Model 2, or AN/TPY–2 to Japan, which dramatically improved our ability to "defend forward."

In addition to the proliferation of ballistic missile threats, I am deeply troubled by the development of advanced long-range cruise missiles and the growing threat they represent to North America. Russia possesses both conventional and nuclear cruise missiles with the range to reach North America and it has proliferated some advanced cruise missile technologies to other actors. This threat is real and it is imperative that we develop effective response options to outpace the threat and enhance our deterrence. We are working with the Joint Integrated Air and Missile Defense Organization (JIAMDO), MDA, and other stakeholders to improve our *Cruise Missile Defense* (CMD) capabilities.

Effectively countering and defeating cruise missiles requires a layered and integrated architecture that can defend across the full spectrum of the engagement sequence. Cruise missiles represent a real operational challenge because of their increased standoff capability, low altitude and small radar signatures. Although no single system can counter all cruise missiles, we have confidence in our layered architecture to defend the Homeland. To defeat this more capable threat, we are working on enhancements to each of the individual systems, including our Indications and Warnings capabilities, wide-area-surveillance, and advanced fire control infrastructure.

We are in the first segment of our three-phase Homeland Defense Design (HDD) effort, which will improve our capability to find, fix, track, target, and engage growing air threats, such as those posed by cruise missiles, low-slow aircraft, and long-range aviation. In this first phase, we are testing and evaluating advanced sensors as well as integrated command and control capabilities. In addition to the new STateside Affordable Radar System (STARS), we had begun a three-year operational exercise of the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS). This exercise has been an opportunity for us to see how well JLENS can fit into the existing Integrated Air Defense System (IADS) of the National Capital Region (NCR), including deployment of a JLENS Fire Control System aerostat, which is designed to work in tandem with the surveillance aerostat.

Unfortunately, on October 28, 2015, the JLENS Fire Control System aerostat detached from its mooring station on Aberdeen Proving Ground, Maryland, and eventually grounded in a wooded area in northeast Pennsylvania. The Army is con-

ducting a thorough investigation to determine the cause of the incident. Although this was a setback to our operational exercise, we still believe the JLENS system shows great promise in defense of the NCR. If the outcome of the investigation leads to the resumption of the operational exercise, we will work with the Army and the Office of the Secretary of Defense, as well as Congressional Defense Committees, on the way forward to continue our assessment of JLENS' performance in support of cruise missile defense.

AEROSPACE WARNING, AEROSPACE CONTROL AND MARITIME WARNING

In 1958, the United States and Canada formalized the bi-national agreement, which created NORAD to provide centralized operational control of continental air defenses against the threat of Soviet bombers. Every subsequent renewal of that agreement helped reshape the partnership to meet evolving threats to North America. After the fall of the Soviet Union, and in light of non-traditional aerospace threats, NORAD expanded its mission to include air sovereignty, warning, and assessment. In the aftermath of September 11, 2001, NORAD's paradigm changed, and we began to focus on aviation security issues originating within Canada and the United States. For the last 14 years, Operation NOBLE EAGLE has defended our nation against 9/11-style terrorist attacks and other non-traditional aviation threats.

Aerospace warning and aerospace control of North America remains NORAD's primary missions. The command retains robust air defense capabilities to execute the air sovereignty mission over Canada, Alaska and the continental United States. Today, we are confronted with an unprecedented spectrum of aerospace and maritime challenges, ranging from resurgence in Russian naval and aerospace activity to the proliferation of private Unmanned Aircraft Systems (UAS).

In addition to expanded military activity in Europe and the Middle East, we are observing a significant rise in Russian military assertiveness in the approaches to North America. Russian Long Range Aviation activity has surged, beginning with regular out-of-area patrols in 2007, culminating with a record number of out-of-area patrols in 2014 and the first-ever combat use of Russian heavy bombers in the Syrian conflict in November 2015.

NORAD is responsible for monitoring and identifying all aircraft of interest approaching North America that may enter the sovereign airspace of either Canada or the United States. On July 4th, 2015, NORAD fighter aircraft intercepted and visually identified two sets of Russian Tu-95 "Bear" long-range bombers flying in the United States Air Defense Identification Zone, one in the airspace west of Alaska's coast and another off the coast of central California. Although none of the four bombers entered United States or Canadian sovereign airspace and were not a direct threat to our national security, they do represent a strategic demonstration of Russian military capability. I believe these flights are one way the Kremlin delivers the message that Russia remains a power with global reach.

In addition to increasing activity from state-actors and the potential for 9/11-style attacks, the growing availability and expanding capability of small manned and unmanned aerial systems will challenge the DOD, the Department of Homeland Security (DHS), and our law enforcement partners defending our airspace. UAS constitute a rapidly-developing industry, with increasingly sophisticated and yet simple-to-operate systems available for purchase by the general public, increasing the likelihood that more of these aircraft will be used in the National Airspace System. Although the vast majority of these devices are operated in a lawful manner, their growing availability increases the likelihood of illicit use. Countering increased proliferation of non-traditional aviation technology (NTAT) will take a whole-of-community approach, with law enforcement at every level playing a critical role.

NORAD is postured to defend against threats to North America by aircraft, cruise missiles, and medium or large UASs. However, the layered detection infrastructure used to detect, identify, and track these threats is not designed for smaller non-traditional aircraft or UAS. On April 15, 2015, a small manned gyrocopter departed from Gettysburg, Pennsylvania and flew to the NCR, landing on the grounds of the Capitol in Washington, DC. The gyrocopter unknowingly exploited an operational challenge in detecting and tracking low-altitude and slow-speed aerial vehicles.

The airspace surrounding the NCR, known as the Washington DC. Special Flight Rules Area (SFRA) is monitored by the Integrated Air Defense System (IADS), which is a vast network of radars, cameras, and other detection and warning devices. The IADS is extremely capable of identifying and tracking potential threats to the NCR—anything from large commercial aircraft down to small, single-propeller recreational aircraft. Our post-event analysis revealed that the gyrocopter was detected by several of our integrated sensors as it approached and transited the

SFRA. However, some of the aircraft's operational parameters, including speed, altitude, and radar cross-section fell below the thresholds necessary to differentiate it from surrounding objects , including weather, terrain, and birds. This event reinforced the fact that detecting and tracking low-altitude and slow-speed aerial vehicles is a significant technical challenge. The post-event analysis was a turning point for the interagency community's efforts addressing the technical and procedural changes necessary to detect, track, and mitigate threats posed by these non-traditional aviation technologies.

As the spectrum of aerospace and maritime threats expands, we test and evaluate our ability to warn and defend against a range of scenarios. We challenge ourselves to outpace the known threats and anticipate the unknown ones. In order to test responses, systems and equipment, NORAD conducts numerous exercises with a variety of scenarios, including airspace restriction violations, hijackings and responses to unknown aircraft. This year, we conducted fourteen robust interagency live-fly aerospace defense exercises. These training events are scenario-based and are intended to exercise all aspects of our airspace defense plans. Defending the airspace in the NCR requires close collaboration with all the interagency stakeholders; therefore, we coordinate and exercise with our key partners, including the Federal Aviation Administration (FAA), the National Capital Region Coordination Center (NCRCC), the Joint Air Defense Operations Center (JADOC), the Civil Air Patrol, the U.S. Coast Guard, and the Continental NORAD Region (CONR) Eastern and Western Air Defense Sectors.

In addition to NORAD's traditional air defense role, our mission set also encompasses maritime warning, which includes the unique responsibility of providing maritime domain awareness and maritime warning of activities conducted in the maritime approaches and internal waterways of North America. Although NORAD does not have a maritime control mission, we are uniquely postured to process, assess and disseminate intelligence and operational information to our Canadian and United States interagency partners. The maritime approaches to North America are extremely congested, which makes executing a unilateral, bilateral or bi-national response to a threat challenging. We issued eight maritime warning advisories in 2015, providing a critical bi-national Homeland defense support capability.

HOMELAND DEFENSE

Global violent extremism is on the rise and it is neither restricted to a single ideology nor constrained by borders. The 2015 attacks in Paris, Mali, Chattanooga, San Bernadino, and others represent a growing radical movement of groups and individuals inspired by a range of beliefs that promote or use violence to undermine our universal values. Here in the Homeland, we are seeing a growing use of violence by domestic terrorists and HVEs, many of whom are radicalized by violent extremist groups like Daesh, and al Qaeda.

We collaborate with the Federal Bureau of Investigation (FBI), DHS, and many other federal agencies to provide unity of effort to deter, prevent, and defend against threats to our Homeland. Our federal partners and allies have successfully deterred or prevented some violent plots, but blind spots and intelligence gaps are common when trying to counter terrorism, so we must prepare for those times when we have no specific warning. In making assessments of possible threats, we gather and share snippets of information and try to determine how individual threat reports may morph into threat streams. We assess these threats against four specific attributes: plausibility, credibility, specificity, and imminency. In a number of cases, we are able to establish that the threats are plausible and credible, but often times we lack specific and imminent pre-operational indicators, which makes preventing these attacks especially challenging.

As the Commander of USNORTHCOM, I am responsible for protecting DOD installations and personnel from domestic threats. One of my assigned tasks is setting the baseline Force Protection Condition (FPCON) for DOD installations in the Homeland. Earlier this year, we began to observe a growing focus on targeting members of the United States military, in addition to virtual targeting of DOD personnel after Daesh released the names and addresses of U.S. servicemembers.

On May 7, 2015, I raised the FPCON level in the United States to FPCON Bravo, which is only the second time that has been done since 9/11. My decision was a prudent measure to ensure increased vigilance and safeguarding of DOD personnel, installations, and facilities within my USNORTHCOM Area of Responsibility (AOR). I believe terrorists will continue to emphasize targeting DOD personnel for the foreseeable future, so establishing a preemptive, unpredictable frequency of actions will mitigate threats to our installations, personnel, assets, resources, and infrastructure.

After the tragic July 16th shootings in Chattanooga, I released an additional force protection advisory that mandated several additional randomly-applied security measures within FPCON Bravo, with an emphasis on off-installation activities, including recruiting stations, Reserve centers, and Reserve Officer Training Corps units. With this threat not diminishing, these increased security measures will likely become our new normal, so we implemented measures that were practicable and sustainable for the facilities affected.

For the Homeland, I believe Daesh's center of gravity is in their narrative and a perception of success in bringing about a 21st century "caliphate." Our objective must move beyond defending against violent extremism to preventing it entirely by breaking their cycle of radicalization, which will require countering their narrative at the grassroots level. Countering the narrative of terrorists like al Qaeda and Daesh requires a globally unified response, including positive and proactive contributions from national and local governments, local communities, and the private sector.

COUNTERNARCOTICS AND TRANSNATIONAL ORGANIZED CRIME

The trafficking and the endemic abuse of illicit drugs represent a national security threat to the United States. The primary criminal drug threat is posed by Mexican TCOs, the main suppliers of cocaine, heroin, methamphetamine, and marijuana throughout the United States. TOC distribution networks and drug trafficking enterprises are expanding, most notably among the heroin and methamphetamine markets. Here in the Homeland, TCOs maintain relatively low profiles to avoid confrontations with law enforcement, but their domestically-affiliated gangs commit violent crimes to maintain power in their territories and control their local drug markets. In addition to illicit drug trafficking, these intricate TOC networks move legal goods, weapons, natural resources, and people, with revenues comparable to the gross domestic product of small countries.

Combating TOC requires unity of effort among federal, state, local, and foreign governments. We will continue to work together with our interagency partners in assisting Mexico and other countries around the world to respond to the evolving threats posed by transnational criminal organizations. Central to this effort is strengthening our partner nations' ability to enhance the rule of law so that judicial, law enforcement, security, and community organizations can effectively combat the TCOs.

USNORTHCOM works very hard to develop the trusted partnership opportunities with our domestic law enforcement agencies and Mexican military partners to align and synchronize our efforts. We provide title 10 counterdrug support to federal, state, and local law enforcement agencies, and we coordinate with the National Guard to synchronize DOD support to domestic law enforcement. When requested by Mexico, and in a manner consistent with the human rights provisions of the Leahy Law, USNORTHCOM cooperates with the U.S. Country Team and the Mexican military to support efforts building C–TOC capacities to disrupt and degrade TCO activities.

We provide operational counterdrug support through our subordinate command, Joint Task Force North (JTF–N), which recruits and employs title 10 units on a strictly voluntary basis filling domestic law enforcement gaps with mostly military-unique capabilities. In 2015, JTF–N provided support to 51 specific multi-domain and multi-LEA operations, including detection and monitoring, ground surveillance, and mobility support.

In addition to providing critical military-unique support to LEA, the operational support provided by the title 10 units significantly benefits DOD, because in many cases, it simultaneously achieves many of the supporting unit's critical training requirements. The planning, interagency collaboration, and dynamic execution of these missions closely approximates the missions these units will perform during future deployments, and the setting of southwest border operations mirrors the austere environment common to many forward-deployed locations.

USNORTHCOM is just one supporting organization in the much larger interagency and international law enforcement effort to counter TOC in the global environment. We contribute, as the other combatant commands do, by addressing threats in our AOR, providing support to our interagency and host nation partners, and collaborating with each other to close gaps and seams. We will continue our efforts to enhance mutual trust, increase collaboration, improve C–TOC capacity, and to contribute to a cooperative defense of North America.

CYBER

Cyber threats are increasingly among the most serious national security dangers faced by the United States today, and I remain adamant in considering activity in cyberspace as integral to an overall domestic attack assessment. More and more we are confronted by a range of actors, from nation states like Russia, North Korea, China, and Iran, to profit-motivated criminals and ideologically-driven hackers. Both state and non-state actors attempt to target critical infrastructure, information and telecommunication systems, and financial institutions. What makes cyber attacks so difficult to defend against is the speed at which the technology advances, coupled with the diffuse nature of the attacks and the difficulty to attribute the source.

Cyber attacks pose a serious risk to the networks and systems controlling our critical infrastructure. The U.S. military is dependent on privately owned critical infrastructure, an attack on which could yield potentially severe consequences in a time of crisis. We are working with our Government and industry partners to isolate our vulnerabilities and identify ways to prevent malicious cyber activity while defending our networks.

In addition to the millions of daily vulnerability probes of our networks and other cyber sabotage activity, we have seen a rise in Chinese cyber espionage, resulting in a significant loss of intellectual property and sensitive information that resides on some of our unclassified systems. This loss of vital intellectual property has the potential to damage our national security and impede our economic growth.

DEFENSE SUPPORT OF CIVIL AUTHORITIES

As the USNORTHCOM Commander and a GCC with responsibility for 49 of 50 states, I have the responsibility to provide DOD assistance to federal, state, local, territorial, and tribal authorities within the Homeland. *Defense Support of Civil Authorities (DSCA),* our second Line of Operation, is a unique authority by which we facilitate DOD support in response to requests for assistance from civil authorities for domestic emergencies, law enforcement support, and other domestic activities. DSCA covers the spectrum of civil activities, from localized weather incidents to the response to weapons of mass destruction events. The DOD has a long history of supporting civil authorities with specialized skills, capabilities, and capacities maintained for the battlefield that provide stability in the wake of catastrophic events at home. Our support has been significantly shaped by lessons learned in the aftermath of Hurricanes Katrina and Sandy, and we conduct vigorous exercises to forge our enduring partnerships with agencies and organizations across the country. We stand ready to support the lead federal agencies (LFA) in responding quickly to natural and manmade disasters and to the effects of terrorist attacks.

The most prominent and frequent support we provide is disaster response assistance to DHS's Federal Emergency Management Agency (FEMA). Last year's FEMA major disaster declarations were mostly in response to severe storms, flooding, and wildfires. We directly supported disaster relief operations to several states that suffered widespread flooding, including South Carolina. One of the worst fire seasons in recent United States history occurred this past year, with wildfires spreading throughout much of the Western United States and straining federal, state, and local firefighting capacity. Of note, 2015 was the worst year on record for wildfires in Washington State, culminating in a rash of fires that resulted in a federal emergency declaration. As a result of widespread fires, the National Interagency Fire Center (NIFC) set the national Preparedness Level (PL) at PL5, the highest level, which indicated that wide geographic areas were experiencing major incidents which had the potential to exhaust all agency fire resources. For the first time since 2006, the NIFC submitted a Request For Assistance (RFA) through USNORTHCOM, with final approval by the Secretary of Defense for DOD firefighting support. In August 2015, NIFC's request was approved, and with the help of the United States Army, we deployed 200 soldiers from 17th Field Artillery Brigade located at Joint Base Lewis-McChord in Washington to provide ground support to the fire-fighting effort. The crews assisted the fire prevention efforts, and constructed firebreaks to slow or stop the progress of the fire.

As incidents in the Homeland develop, we work closely with our interagency partners to provide options for DOD support, should they require our assistance. In November, the DHS and U.S. Department of Health and Human Services (HHS) observed an increase in the number of unaccompanied children (UC) and family units apprehended along the Southwest Border, with a trend that was projected to exceed its organic housing capacity. The Office of Refugee Resettlement at HHS initiated a plan to expand its temporary capacity to house unaccompanied children, which included a request to the DOD to identify facilities capable of temporarily housing

UCs. In support of HHS and with the help of the Services, we coordinated the use of several DOD installations that could be used for this purpose, under a reimbursable agreement between the agencies. In January 2016, 129 UCs arrived at Holloman Air Force Base, New Mexico under the care of HHS' Administration for Children and Families and USNORTHCOM remains ready to facilitate the use of other DOD installations if needed.

HOMELAND PARTNERSHIPS

The focal point of USNORTHCOM and NORAD's power and strength are in the partnerships that we create and sustain with joint, interagency, and multinational organizations. Our trusted partnerships are our center of gravity and are critical to our success across the spectrum of our missions. *Homeland Partnerships,* our third line of operation, underscore every one of our mission areas, and are best represented by the integration in our headquarters of nearly 60 DOD and non-DOD federal agencies, department representatives, and liaison officers. I view Homeland defense as a team effort, and I rely on partnerships with my fellow combatant commands, the Services, and our interagency partners to accomplish this mission.

We have built on our partnership with the Joint Improvised-threat Defeat Agency (JIDA) and the resulting collaboration with the lead federal agencies to protect the Homeland from next-generation Improvised Explosive Devices (IED).

We continue to develop our key partnership with the DHS and provide support through frequent strategic, operational and tactical dialogue. I collaborate regularly with DHS Secretary Jeh Johnson through visits and monthly video teleconferences. I believe that his Southern Border and Approaches Campaign will further unify Homeland defense and security along our southern border. We are underway with the first of three deliberate phases of support toward an end state of fully integrated and synchronized operational activities with DHS's new Joint Task Forces (JTFs).

REGIONAL PARTNERSHIPS

USNORTHCOM and NORAD do not face today's complex strategic environment alone. Our allies and partner nations actively contribute to the cooperative defense of North America. Strong and reliable *Regional Partnerships,* our fourth line of operation, are critical for us to protect our shared values and ways of life and defend our nations in depth. We are inextricably linked with our partners through geography, economies, and demographics, and conduct deliberate security cooperation with them to strengthen our defense in depth and advance our mutual security interests.

CANADA

For over 57 years, NORAD has been a model for international cooperation and a symbol of trust and confidence between the United States and Canada. Our partnership is reinforced by our common values, and today, the men and women who wear the cloth of these two great nations work side-by-side throughout USNORTHCOM and NORAD. We are fortunate to have dedicated Canadian military members fully integrated throughout the NORAD Command and staff, including the three-star Canadian officer who serves as my NORAD Deputy Commander. This year, we hosted our 8th annual Tri-Command Staff Talks among USNORTHCOM, NORAD, and Canadian Joint Operations Command (CJOC), during which we were able to advance several key initiatives, including combined training and exercises, and synchronization of our requirements and capabilities advocacy processes. Going forward, I will promote our alliance with Canada to enhance our interoperability and contribute to combined operations.

With our Canadian partners, we are focusing on a deliberate collaborative investment strategy to outpace current and potential adversaries and counter emerging threats through a seamless and layered defense. As a result of our recent NORAD Strategic Review directed by the Chairman of the Joint Chiefs of Staff and the Canadian Chief of the Defence Staff, we commenced an effort to modernize NORAD. One of the first parts of our modernization is the North Warning System, which is the linchpin of our ability to detect, assess, and track airborne activity along the northern border of North America. Over the next decade, a priority will be research and development in next-generation indications and warning systems for the northern approaches to improve detection, surveillance, and engagement of current and emerging threats, ensuring our ability to monitor, control, and respond if necessary.

MEXICO

This year, the military-to-military relationship between the United States and Mexico reached unprecedented levels of coordination. Today we are strategic partners, respecting the laws and sovereignty of our individual nations, while confronting shared security challenges. We have developed an enduring cooperative relationship with the Secretariat of National Defense (SEDENA) and the Secretariat of the Navy (SEMAR). We work closely with the Mexican military to enhance planning, tactical skills, communication capabilities to include cybersecurity, and incorporation of human rights principles. In 2015 alone, I personally met with top military leaders of Mexico on eight separate occasions to strengthen our relationships and enhance our coordination.

I expect the safety and security of North America will be a long-term fight, and we continue to help the Mexican military build partnership capacity at their pace. We continued our training and equipping efforts focusing on ensuring the timely delivery of a record Foreign Military Sales (FMS) investment of over a billion dollars by the Government of Mexico in UH–60 Blackhawk helicopters and High Mobility Multipurpose Wheeled Vehicles (HMMWV). We also began the process this year of partnering with United States and Mexican civil organizations to enhance the Government of Mexico's ability to control and regulate their southern border with Guatemala and Belize. The focus of our efforts in this region is to collaborate on improving the communications network and investing in a biometrics system to promote interagency coordination and reduce insecurity.

This past summer, in conjunction with our Customs and Border Protection Air and Marine Operations partners, we conducted our second annual bilateral security cooperation exercise with Mexico, which demonstrated the significant progress we have made in training, information sharing and interoperability with the Mexican military. The exercise employs a cooperative response scenario designed to exercise and refine procedures to monitor, track and coordinate a response to an illegal flight transiting the border between the United States and Mexico. We expanded the scope of this year's exercise by including a two-phase live-fly portion, with the first phase simulating a hijacked aircraft originating from the United States and transiting into Mexico. The second phase was a simulated stolen aircraft suspected of carrying narcotics which originated in Mexico and transited into the United States. Not only did these two scenarios improve our information sharing and mutual warning processes, the enhanced air control procedures we developed provided the foundation necessary to streamline a coordinated response to suspicious aircraft transiting our shared border.

Our combined efforts to promote democratic values, respect human rights, and counter TCOs continue to be a key focus of the training provided by the Western Hemisphere Institute for Security Cooperation (WHINSEC). This program provides a critical foundation for mutual security and democracy, and the relationships formed by the students at WHINSEC reinforce the trust and cooperation among the participating nations.

THE BAHAMAS

Increased tourism, maritime, and commercial activity complicated by a resurgence in illicit trafficking and foreign influence, makes the Caribbean region a significant challenge in maintaining our national security. We are working with our regional partners to build domain awareness and develop capabilities to counter illicit trafficking and smuggling. Our "third border" with The Bahamas is the basis for a partnership critical to the security of the United States. The Bahamian Government is a willing partner, though they are limited in their security capacity, so we are forging a strong partnership through our support of the Royal Bahamas Defence Force (RBDF) and are helping them build capabilities that enhance detection, monitoring and interdiction of the migrant and drug flows that transit their country.

THE ARCTIC

Climate change and receding polar sea ice in the Arctic combined with global interest in emerging economic opportunities and an increase in human activity pose unique security challenges for the United States. Although the Arctic remains a vast, harsh and challenging operating environment, many Arctic nations are demonstrating increased interest and presence in the region. I believe that The Arctic, our fifth line of operation, represents the intersection between geography and interests. I view the Arctic as an emerging region where we will be called upon to support other federal agencies and work with our regional partners to safeguard the stability and security of the region.

We believe that while the likelihood of military conflict in the Arctic in the short term is low, international interest and presence are growing and it is necessary that the United States, and specifically the DOD, plan for a wide range of challenges and contingencies. Today, the often harsh operating environment yields significant variability in the pace and scope of change in commercial activity, which complicates our ability to plan and invest in our required capabilities. Constrained budgets and competing priorities dictate that we take a proactive, yet prudent approach to our investments in Arctic capabilities.

As the Commander of USNORTHCOM, one of my assigned tasks is to be the DOD advocate for Arctic capabilities. In this role, I am responsible for collaborating with DOD Arctic stakeholders to help identify capability requirements and shortfalls across the spectrum of DOD operations and champion their resolution with our trusted partners. Our Arctic Capabilities Advocacy Working Group (ACAWG) is a collaborative forum among DOD, interagency, and trusted international Arctic stakeholders, including geographic and functional combatant commands, the Joint Staff, the Military Departments and Services, and DOD agencies that supports these actions.

Our ACAWG is taking a prudent, fact-based approach to Arctic advocacy and investment so that we do not over invest, under invest, or be late to need. We are looking at short, middle, and long-term material and non-material capabilities across the spectrum of DOD operations, including Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities and Policy. Our forces must be able to navigate, communicate, and sustain themselves to be effective in the region. To facilitate this, we are looking at capabilities that support domain awareness, communications, infrastructure, and sustainable presence.

Establishing a presence in the Arctic is an extremely costly proposition, with estimates running three to ten times the cost of building comparable facilities elsewhere. I believe that large fundamental infrastructure investments are not required to establish a large physical presence in the Arctic. Instead, we are concentrating on scalable infrastructure sufficient for us to support contingency and emerging Arctic missions, with a focus on qualified and equipped forces that have essential Arctic-capable platforms that can deploy and operate freely in the region, when required.

The United States has assumed the Chairmanship of the Arctic Council at a crucial time amidst growing international presence and interest in the Arctic. I believe that it is in the best interest of the United States that we accede to the Law of the Sea Treaty to give us a stronger position as we negotiate the complexities of territorial concerns and maritime security interests.

CONCLUSION

Our final two Lines of Operation, *Professionalism and Excellence and Warfighters and Families,* are perhaps the most pivotal because they underpin our endeavors across the spectrum of our assigned missions. We hold ourselves to the highest standards of personal and professional conduct. We reinforce our warfighters by ensuring that they are properly trained for their missions, while also providing the family advocacy programs, community outreach and service support functions that are critical to the families who, in turn, support our warriors.

Despite what is likely to be an onerous fight against increasingly diffuse threats, we are very fortunate to be able to depend on the brave men and women who choose to wear the cloth of their nation and defend their fellow citizens. We embrace our no-fail mission at a time when our unique capabilities are needed most, and with your support, together with the exceptional men and women of USNORTHCOM and NORAD and our trusted partners, we will remain the greatest force for freedom, safety, and security for North America. I look forward to your questions.

Chairman MCCAIN. Admiral Tidd.

STATEMENT OF ADMIRAL KURT W. TIDD, USN, COMMANDER, U.S. SOUTHERN COMMAND

Admiral TIDD. Chairman McCain, Ranking Member Reed, distinguished members of this committee, thank you for the opportunity to speak with you today.

I'm honored to represent the men and women of United States Southern Command, and I'm very pleased to be here today with my very good friends and shipmates, Cecil Haney and Bill Gortney.

I'd like to thank the Congress, and this committee specially, for its longstanding support to our mission and to our partners in Central America, South America, and the Caribbean.

I'd like to focus my opening remarks very quickly on three Cs and three Gs. The Cs are connections, Colombia, and Central America.

The first C, of connections. Security in this hemisphere connects directly to other parts of the world. Smuggling networks run through South America directly into our Homeland. Foreign terrorist fighters flow from the Caribbean to Syria and to Iraq. As part of their global strategy, Russia attempts to discredit our reliability as a trustworthy partner here in our own region. These issues transcend artificial boundaries, and they demand a transregional, united response.

The second C is Colombia. As has already been recognized, this committee knows well Colombia's transformation has been remarkable. Once on the brink of failure, Colombia is now on the brink of peace. But, the hardest work lies ahead, extending government influence into dangerous criminal-controlled territory, confronting the persistent threat of cocaine production and trafficking, and, above all, securing a just peace that will end more than 50 years of conflict. With the blood and treasure that they have already sacrificed, with all that they continue to do to export security across the region, the Colombian people have more than earned our sustained support.

The third C is Central America. As we recognized during the 2014 migrant crisis, what happens on the streets of San Salvador and Tegucigalpa have a—has a direct impact on the streets of Tucson and Providence. Our Central American partners are doing all they can to win their countries back from vicious gangs and narcotraffickers, but they cannot do it alone. Because we remain the number-one world's consumer of illicit drugs, we owe it to them to do our part.

Now to the three Gs: global networks, global competitors, and Guantanamo Bay.

Global networks are the biggest threat that we face in our region. No two networks are alike. Some are international criminal enterprises focused on transporting any illicit cargo for the right price. Others are small operations that smuggle desperate migrants. Still others support terrorist organizations through financing and through the spread of their violent extremist ideology. No matter the motivation of these groups, though, all of them have a corrosive effect on the stability and the security of every country that they infect, including our own.

Global competitors. They also operate deliberately in the western hemisphere as part of their broader global strategies. The most concerning of them is Russia, which portrays the United States in our theater as unreliable and as withdrawing from this pivotal region.

Finally, Guantanamo Bay, where we conduct the most principled, humane detention operations anywhere in the world. We will continue to do so until the very last detainee steps on an airplane and departs the island. I know this committee shares my enormous pride in the men and women who serve in this demanding, sen-

sitive, and often thankless mission with honor and with the utmost discipline, professionalism, and integrity. They are every bit as engaged in the war and every bit as deserving of our thanks and praise when they return home, just as their brothers and sisters who have returned home from Iraq and Afghanistan. I thank very much your recognition of the hard work that they do.

Mr. Chairman, members, thank you again for the opportunity to appear before you today. I look forward to our continued discussions.

[The prepared statement of Admiral Tidd follows:]

PREPARED STATEMENT BY ADMIRAL KURT W. TIDD

INTRODUCTION

Mr. Chairman, Ranking Member Reed, and distinguished Members of the Committee: thank you for the opportunity to appear before you today to discuss U.S. Southern Command's activities in Central America, South America, and the Caribbean. Before I begin, I would like to thank the Congress—and this Committee in particular—for its longstanding support to our mission and to our partners in the region. Our efforts are made possible through your help and by the hard work of our service components, Joint Task Forces, and our soldiers, sailors, marines, airmen, coast guardsmen, civilians, and contractors.

In my short time in command, I have dedicated myself to expanding my knowledge of U.S. Southern Command's area of responsibility (AOR). The Latin America and Caribbean of today is far different than it was a quarter of a century ago.[1] The region is home to a substantial middle class that actively seeks more responsive and transparent governments able to deliver promised services. There is little risk of armed conflict between neighboring states; border disputes are settled in diplomatic channels, not on battlefields. Governments are more democratic and respectful of human rights than at any point in the region's history. Militaries are more capable, professional, and among their countries' most trusted institutions.[2] These militaries are also some of our most reliable partners, committed to working with us and with one another to confront threats to hemispheric security.

Despite these improvements, the region still faces persistent, unresolved challenges. The slowing Chinese economy and falling global commodity prices are causing economic downturns across Latin America. Violent crime, widespread poverty, and fragile institutions continue to plague many nations. Pervasive corruption, inequality, chronic unemployment, deteriorating citizen safety, and limited economic opportunity drive migration, propel young men and women to join violent gangs, or set the conditions for instability and potential violent radicalization. Lack of state presence, ineffective governance, and weak rule of law provide fertile ground for the drug trade and the spread of powerful criminal networks. Public frustration with slow economic growth, social exclusion, and endemic government corruption fuels social protests and unrest. In certain countries there is a troubling trend toward authoritarianism: elected leaders that shun democratic standards, abuse human rights, muzzle the press, and suppress the opposition. Natural disasters such as ?hurricanes, earthquakes, volcanoes, fires, floods, and drought—as well as potential regional epidemics like the Zika virus—loom as ever-present ?dangers.

The good news is none of these challenges is insurmountable, but all warrant continued engagement. Because no nation in the region poses a direct, conventional military threat to the United States, Latin America tends to rank fairly low on force allocation priorities. This is understandable—but often requires what is, in my view, an unfortunate trade-off. Our attention to other parts of the world should not come at the expense of the significant gains made in our own hemisphere. Over the last twenty years, prudent engagement by the U.S. military has supported democratic governance and economic development, nurtured and developed professional defense forces, and encouraged greater security collaboration. Along with the State Department and other interagency partners, we have worked hard to realize a vision of

[1] Secretary of State John Kerry, Remarks at the 45th Annual Washington Conference of the Council of the Americas. April 21, 2015.

[2] Latin American Public Opinion Project (LAPOP): 2014 *AmericasBarometer,* Vanderbilt University.

the Americas where countries share responsibilities, cooperate as equals, and advance common interests and values.

Now, as criminal networks threaten the integrity of institutions and jeopardize citizen security, we must help countries build on the considerable progress achieved to date and continue working towards our shared priorities. As competitors seek to challenge our aim of being the region's security partner of choice, we must redouble our commitments and reinvigorate our partnerships. As the world works to contain the spread of violent extremism and confront challenges to a rules-based international order, we must seek new ways to strengthen our network of allies and partners. As we face an increasingly complex, interconnected security environment, we must look beyond borders and boundaries and seek not just whole-of-government, but whole-of-hemisphere solutions to our shared challenges. Mr. Chairman, positive and persistent U.S. engagement remains essential to advancing a Western Hemisphere that is prosperous, stable, and secure.[3] With the continued support of the Congress and in full collaboration with our interagency and regional partners, U.S. Southern Command will continue working towards that goal.

Finally, Mr. Chairman, Members: I am humbled and honored to be part of the great team at U.S. Southern Command, and I look forward to working with you and your staffs in the coming years. I intend to focus my efforts in four key areas: ensuring we remain the premier security partner of choice in this hemisphere; deepening our interagency collaboration to generate heightened trust; becoming the innovation platform for the Department of Defense, interagency, and international partners; and enabling the critical transregional operations and initiatives of our sister Combatant Commands and interagency partners. We will continue to pursue an era of inclusive engagement with this vital part of the world and advance our "Partnership for the Americas."

SECURITY ENVIRONMENT

The security environment in Latin America and the Caribbean is characterized by complex, diverse, and non-traditional challenges to U.S. interests. The principal challenge remains *transnational criminal networks,* which are well-organized, well-financed, well-armed, and technologically advanced. These networks are efficient, adaptive, innovative, and exceptionally ruthless. They will transport *anything or anyone*—cocaine, heroin, weapons, people, even wildlife—if they believe the potential profit is greater than the potential risk. Enormous profits allow criminal networks to acquire capabilities that rival or even exceed those of the states that battle them, including high-powered rifles and machine guns, transport planes, and long-range submersibles. In response to these extraordinary circumstances, democratic governments have deployed their militaries to support overwhelmed police forces.

The overarching threat to our national security, however, is *not just* the range of illicit commodities that are trafficked, but instead the destabilizing operations, corruptive influence, and global reach of many of these networks, some of which smuggle 'special interest aliens' (SIAs). Although the vast majority of SIAs are seeking economic opportunity, such as some from Iran, or are refugees fleeing war, like some from Syria, there is a risk that violent extremist organizations could exploit established networks, established smuggling routes, or other regional vulnerabilities—including lax immigration and border security, corrupt government officials, or the enabling capabilities of criminal organizations—to enter and move through the region undetected.

Spotlight: Syrian SIAs in the AOR

- In 2015, partner nation officials detained six groups of Syrians in Honduras, St. Maarten, Costa Rica, the Dominican Republic, and Paraguay.
- In each case, access to fraudulent or stolen documents and corrupt law enforcement officials facilitated SIA movement through numerous countries in the AOR.

Let me talk for a moment on that last vulnerability. Whether Sunni or Shiite extremists would wittingly collaborate with criminal groups to accomplish their goals is up for debate. Many people are quick to dismiss the possibility of these groups

[3] The White House, *National Security Strategy.* February 2015.

working together in this part of the world. They believe the absence of evidence of a relationship is *evidence* of its *absence.* Mr. Chairman, we at U.S. Southern Command can't be that certain. We know that extremist groups are ideologically-driven and want to harm the United States. We know that criminal organizations are profit-driven and will engage in illicit activities that increase their bottom line. We also know that both operate in the same dark underworld of illicit finance, fraudulent documents, and weapons trafficking and that violent extremist organizations have availed themselves of some of these criminally-provided services. What U.S. Southern Command lacks is the intelligence necessary to identify, monitor, and fully illuminate and understand these networks and the resources necessary to significantly disrupt, degrade and ideally dismantle them.

Like our counterparts in the U.S. Government and the Congress, we are also deeply concerned by the 'triple threat' posed by *foreign terrorist fighters:* they strengthen transnational terrorist groups, incite others back home to conduct attacks, and can ultimately return to launch acts of terror.[4] ISIL's strategic communication efforts have resonated around the world, including in parts of Latin America and the Caribbean. Since 2013, we have seen a small number of individuals and their families leaving the region to join ISIL in Syria or Iraq. The appeal of violent extremist ideology to some Caribbean citizens and their subsequent travel to Iraq and Syria remains a concern; not just for us, but for our friends and partners across the region.

As in other parts of the world, the potential return of violent extremists is a threat. These individuals could be well positioned to spread ISIL's poisonous ideology and potentially inspire or execute acts of terror against U.S. or partner nation interests. Many partner nations are unable to monitor the potential return of foreign fighters and often lack robust counterterrorism legislation and capabilities to confront this threat. There is a significant and growing consensus—which I have personally observed during conversations with security chiefs across the region—about the threat of radicalization to violence in this hemisphere; San Bernardino and Paris are clear examples and dramatic wake-up calls that radicalization can happen anywhere. We will work with our partners to enhance support to the global coalition to counter ISIL, other transregional terrorist threats, and violent extremist organizations.

As a state sponsor of terrorism, *Iran's* nefarious involvement in the Western Hemisphere also remains a matter for concern. While Iranian engagement has waned in recent years, President Rouhani recently indicated that Tehran intends to increase economic, scientific, and cultural ties with Latin America though he has made this same pledge several times since his election in 2013. Additionally, *Lebanese Hezbollah* maintains an extensive regional network of supporters and sympathizers, some of whom are involved in trade-based money laundering and other illicit activities to generate revenue, a portion of which goes to support the parent organization in the Middle East. Lebanese Hezbollah also maintains an infrastructure with the capability to conduct or support terrorist attacks. As with every aspect of our counterterrorism efforts, the U.S. Government remains vigilant against these threats, working closely with our partners to protect the southern approaches to the United States.

Apart from what I have already discussed, several other trends impact *regional stability.* In El Salvador, Guatemala, and Honduras, many of the conditions that caused the 2014 migration crisis of unaccompanied children—high homicide rates, chronic poverty, and lack of economic opportunity—remain the same or are worsening, leading the UN High Commissioner for Refugees to call for action to respond to the 'looming refugee crisis' in the region.[5] While apprehensions on our border are down, Mexico's apprehensions at its southern border have increased dramatically over the past three years.[6] Sustainable development and security gains must continue apace if the sub-region is to address its long-standing challenges. To this end, I would like to thank the Congress for providing funding to our State Department and USAID partners as part of the U.S. Strategy for Engagement in Central Amer-

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[4] House Committee on Homeland Security, *Final Report of the Task Force on Combating Terrorism and the Foreign Fighter Threat.* September 2015.

[5] Comments made by UN High Commissioner for Refugees Antonio Guterres on the release of The UN Refugee Agency's report *Children on the Run: Unaccompanied Children Leaving Central America and Mexico and the Need for International Protection.* October 28, 2015.

[6] Customs and Border Patrol apprehended 145,316 Central American migrants (including 39,970 UACs) at the US SW Border in fiscal year 2015. From October 2014 to April 2015, Mexican officials stopped nearly 93,000 Central American migrants, far exceeding the 49,800 detained in the same period 12 months earlier.

ica, a five-year initiative that will help State Department and USAID address the root causes of migration.

Central America is still awash in weapons and street gangs such as MS–13 and M–18, both of which originated in the United States and have close, direct, and growing ties with their U.S. counterparts. As an indication of how dire the situation is in El Salvador, its Supreme Court designated these groups as terrorists by ruling they violate the fundamental rights of the population and seek to usurp state power. Gangs are targeting the police and military with homemade grenades and car bombs and terrorizing Salvadoran citizens. According to the FBI, MS–13 is now present in 42 U.S. states, with a significant presence in Houston, Long Island, Charlotte, and Washington, DC.[7] Mr. Chairman, the simple fact is that economic and security crises in Central America reverberate almost immediately through communities across our country.

Further south, rising crime, violence, and deteriorating economic conditions continue to plague Venezuela. Due to speculation about the potential end of United States immigration policies favorable to Cubans, an increasing number of Cuban migrants are traveling overland through Central America and Mexico to cross at the United States Southwest border, with over 30,000 arriving via this route in fiscal year 2015—in addition to more than 4,000 that arrived via traditional maritime routes through the Florida Straits. Haiti—one of the most unstable and least developed nations in the Western Hemisphere—will be especially vulnerable as the electoral crisis drags on and the United Nations stabilization mission draws to a close.

Our Colombian partners have made heroic strides battling the FARC, but a peace accord will not spell the end of their security challenges. Even if a peace accord is signed this spring, Colombia will confront other threats, including criminal networks that will gladly recruit experienced ex-FARC members and exploit the potential power vacuum generated by the FARC's demobilization. As an example, the transnational criminal network Clan Usuga is quickly becoming a significant threat to Colombian national security. The 3,000-strong group is comprised of former paramilitaries; has agents throughout Central and South America and Spain; and is expanding into Venezuela to increase its share of the drug trade. All of these issues warrant continued active United States engagement to ensure our partners in Central America and the Caribbean can address sources of instability and Colombia can deliver on the promise of a hard-won peace.

Spotlight: Colombia's Counter IED Capacity

The Colombian military, with our support and that of our interagency partners like JIDA, has reduced IED incidents by 21 percent in 2015. Casualties from IEDs are down 38 percent and the "found and cleared" rate for IEDs is nearly 80 percent.

We must also contend with global competitors from outside our hemisphere that are strategically and purposefully operating in the Western Hemisphere. In this part of the world, *Russia's* actions are directly connected to its broader global efforts to demonstrate that Russia is a global power capable of challenging United States leadership and the established rules-based international system. Russian officials' rhetoric, high-level political visits, and military-security engagements are designed to displace the United States as the partner of choice in the region. Over the past year, Russia continued to maintain a presence in Latin America, collecting information about the region and the United States. Since mid-December 2014, Moscow has deployed an oceanographic and a hydrographic research ship to Nicaragua; an intelligence collection ship to the United States east coast and Caribbean; and an additional oceanographic research ship to the Caribbean. This is four naval deployments to Latin America in less than twelve months, all of which involved data or intelligence collection. Russia also reached an agreement with Nicaragua for simplified port access and logistical support, and regularly broadcasts anti-American propaganda in Ecuador, Argentina, and Venezuela via Russian state-owned RT–TV, which also broadcasts to the United States, and via online news and Sputnik Mundo, which is targeted to Latin American audiences. Russia uses this media to create doubts about United States intentions and criticize United States policies.

We need to engage proactively and deepen security cooperation with our partners in the Americas. We strongly suspect that Russia's actions in the Western Hemi-

[7] National Gang Intelligence Center Assessment, November 2015.

sphere are not driven by events in this AOR, but rather are integrated into a larger, more holistic approach. This requires an equally integrated, transregional response on our part. When it comes to transregional competitors, we are closely coordinating with fellow combatant commanders to ensure we are contributing not just in our area of responsibility but across regional boundaries to ensure competitors are unable to exploit seams between our areas of responsibility.

In contrast to Russia, *China's* primary focus in the region is on trade and investment. Still, China seeks to forge security relationships as part of its strategy to increase its influence in the region. Military engagements tend to focus on soft-power, with offers of training in Beijing, high-level visits, donations of equipment, and naval diplomacy efforts. During May–June 2015, a Chinese Naval Hydrographic Survey Ship made port calls in Brazil and Ecuador during its circumnavigation. The Chinese Navy's 20th Naval Escort Task Force made a port call in Cuba in November as part of their goodwill cruise around the world. Additionally, the Chinese hospital ship PEACE ARK visited Peru, Grenada, and Barbados in 2015 to provide medical services to local communities, marking the vessel's second visit to the region since 2011. Chinese defense firms also continue to make inroads into the Latin American arms markets through low-cost military hardware, no-strings-attached sales and financing, and offers of co-production facilities in the region. While China's competition for regional influence does not pose a direct military threat to our interests in this hemisphere, it does reinforce the importance of ensuring China's activities abide by regional political, economic and security norms. It also underscores the importance of the United States remaining engaged in this important part of the world.

COMMAND PRIORITIES

To address these challenges, we work with our partners to defend the southern approaches to the United States, respond to regional contingencies, and promote security cooperation with the 31 nations and 16 areas of special sovereignty in our AOR. We focus on one no-fail mission and four priorities, which I would like to discuss today.

We continue to conduct safe, humane, legal, and transparent care and custody of the remaining detainees currently at Joint Task Force Guantanamo (JTF–GTMO). Detention operations are a demanding, sensitive, and often thankless mission. The medical and guard force deal with enormous stress and are subject to near-constant verbal and physical assaults by detainees. Some of our female troops must continue to deal with the frustration of a temporary court order that prevents them from performing their assigned duties, even though they are all fully trained, immensely qualified, and embody the values of equality and diversity that our nation espouses to the world and holds dear. Despite these challenges, and as many of you have witnessed first-hand, the men and women at JTF–GTMO conduct the most humane, principled detention operations anywhere in the world, often exceeding the requirements of U.S. laws and the Geneva Convention. I thank you for your continued active support for these tremendous young men and women and invite you to continue to visit them to see for yourselves the conditions under which they labor, and the quiet professionalism with which they execute their duties.

Unlike the conduct of our troops, the condition of many JTF–GTMO facilities falls far short of acceptable standards. As the Congress knows, most of the facilities constructed to temporary standards are deteriorating rapidly due to the harsh environment, ongoing mission demands, and a chronic lack of funds for maintenance and recapitalization. Last year, rains associated with Hurricane Joaquin resulted in widespread leaks in troop housing—an unsurprising occurrence, given the dilapidated condition of these buildings. With no long-term military construction, we expect to continue addressing life, health, and safety issues in an incremental, piecemeal manner that rapidly becomes more costly than investment in new construction.

In concert with our law enforcement, intelligence community, diplomatic, and regional partners, we remain focused on *countering transnational organized crime (CTOC).* Our Joint Interagency Task Force South (JIATF–S) is at the forefront of our efforts to combat the illicit drug trade and to illuminate the networks engaged in this nefarious activity. Although receiving only 1.5 percent of the total U.S. counterdrug budget, JIATF–S and its international partners disrupt three times the amount of cocaine seized at or within U.S. borders. While the U.S. Navy was only able to provide limited surface ships to and U.S. Customs and Border Protection assets, as well as significant contributions by partner nations and Allies, helped disrupt 192 metric tons of cocaine in fiscal year 2015. Operations like MARTILLO not only strike a blow to powerful criminal networks, they ultimately save U.S. lives

and resources by stopping hundreds of tons of cocaine, heroin, and other drugs destined for our cities and towns.

Operation MARTILLO Fiscal Year 2015 Disruptions

Cocaine	192 MTs
% disrupted by partners	35%
Marijuana	62,995 lbs
Bulk cash	$11.4 million

In response to the insecurity that drove last year's unaccompanied children crisis, we are prioritizing our capacity-building efforts in the Northern Tier of Central America. We thank the Congress for its support to our CTOC activities and for recognizing the important role security plays in addressing the sub-region's long-standing challenges. Through equipment support, infrastructure projects, counterdrug training, and aggressive information sharing, we are improving our partners' maritime interdiction and border security capabilities and enhancing regional domain awareness. To complement these efforts, last year our Marine component deployed a Special-Purpose Marine, Air, Ground Task Force (SPMAGTF) to help partner nations extend state presence and security in Honduras, Guatemala, El Salvador, and Belize. Working alongside Honduran military and government officials, U.S. Marines built roads and a C–130 capable airfield and provided essential water services to vulnerable populations. Working in tandem with Joint Task Force-Bravo, the SPMAGTF promises to be one of our most responsive forces; sourced mainly by Marine Reservists, it provides us with an agile, forward-deployed, rapid response capability that is without equal.

Spotlight: Support to Interagency Operations

In 2015, we supported United States Immigration and Customs Enforcement's (ICE) Operation CITADEL, which targeted the smuggling of migrants from the Middle East, Asia, Africa, and Latin America into the United States. This operation led to the dismantlement of large-scale criminal networks and the rescue of many unaccompanied children.

We also dedicate significant effort to remaining vigilant against the threat of violent extremism, and I thank the Congress for providing the dedicated resources to support this important mission. Our *counterterrorism* (CT) efforts center on building and supporting partner nation capacity to detect and defeat terrorist threats within their borders. We are working with partners from across the region to counter extremism, recruitment, and radicalization to violence in vulnerable communities. Over the past year our Special Operations Forces (SOF) conducted multiple engagements such as subject matter expert exchanges, counterterrorism-focused exercises, and civil affairs activities. These efforts—coupled with support to U.S. Country Teams and interagency operations—ensure our nation and those of our friends remain secure. As discussed earlier, transnational organized crime and terrorist networks are intersecting layers of a global illicit economy. We will begin to explore if and how taking a counter network approach against illicit networks can improve our insight and successes in both our CTOC and CT efforts.

Spotlight: DOD Rewards Program

In 2015, the DOD Rewards Program enabled partner nation authorities to bring 135 members of terrorist organizations to justice.

Whether countering transnational organized crime and terrorism, supporting disaster response operations, establishing cyber defense capabilities, or emphasizing a solid human rights foundation, *building partner capacity* is the cornerstone of everything we do. Our efforts help build and nurture committed and capable partners

who can control their borders, address drivers of insecurity and instability, respond to natural and man-made disasters, and contribute to regional security—all of which help generate an extended layered defense of the U.S. Homeland and protect our interests. Although it is impossible to do justice to all the incredible work being done by our joint task forces, service components, and the National Guard's State Partnership Program, I would like to share a few highlights of our capacity-building efforts in the region.[8]

After 51 years of armed conflict, *Colombia*—a strategic ally, friend, and preeminent partner—is on the verge of ending the hemisphere's longest-running guerilla war. Thanks to its own efforts and our sustained assistance, Colombia has been transformed from a near failed state into a major regional player with significant political influence, world-class security forces, and a growing economy. The Colombian military has grown from an internal defense force to a respected exporter of counterdrug and counter IED expertise[9] and is standing up a regional demining center of excellence. The Colombian Navy is also a regular contributor to NATO counter-piracy operations off the coast of Africa as well as counterdrug patrols in our own hemisphere with JIATF–South.

Colombia's transformation is remarkable, but it will still face an uncertain period with many new challenges even when an accord is reached. In many ways the hardest work lies ahead. For Colombia to successfully consolidate the promise of its decades-long struggle, the United States must remain as fully engaged a post-peace accord partner as we ever were during Colombia's struggles. U.S. Southern Command will continue to support Colombia's efforts to: take the FARC off the battlefield and out of illicit activities; successfully implement a new counternarcotics strategy and establish state presence; conduct humanitarian demining; and transform the Colombian military to adapt to an evolving security environment. On a broader level, it is also essential that we continue providing Colombia a robust and agile assistance package that will help it successfully address the new security, developmental, and human rights challenges posed by a post-accord environment.

To enhance the *professional development* of the region's military officers and senior enlisted leaders, U.S. Southern Command conducts or facilitates International Military Education and Training (IMET), military and defense exchanges, and security seminars. Through the Defense Institution Reform Initiative (DIRI) and William J. Perry Center for Hemispheric Defense Studies, we are supporting the increased professionalization of regional defense organizations. These programs help build accountable, transparent armed forces that can ensure the sustainability of U.S. security cooperation investments, increase citizen safety, and uphold universal values such as good governance, rule of law, and respect for human rights. We are also supporting the development of a competent and professional Non-Commissioned Officer (NCO) corps through close interaction during engagements, exercises, and at defense institutes like the Western Hemisphere Institute for Security Cooperation (WHINSEC) and Inter-American Air Force Academy (IAAFA).

Spotlight: Building Cyber Defense Capacity

We are building cyber security and cyber defense capabilities with seven regional partners and working with Brazil, Peru, Colombia, and Chile as they establish dedicated cyber defense commands or capabilities.

As the only Combatant Command with a dedicated human rights office, we continue to make progress engaging our partners on this foundational issue. Last year, Paraguay became the 11th partner nation to commit to implementation of the U.S. Southern Command-sponsored *Human Rights Initiative* (HRI) within its military forces. We also supported civil-military dialogues in Honduras and Guatemala and held the first-ever HRI event in Haiti. Partner nations acknowledge their responsibility to respect and protect human rights, but generally lack the resources to build

[8] For a full overview of component activities, please see the Annex.

[9] In 2015, USSOUTHCOM and the Department of State Bureau of International Narcotics and Law Enforcement supported military and civilian law enforcement capacity-building activities by Colombian military and law enforcement personnel. USSOUTHCOM provided assistance to the COLMIL to execute 85 military BPC activities. These activities were focused on maritime interdiction, support to law enforcement entities, security and maintenance of vessels at port, riverine training, command and control, border security, intelligence training, and human rights training.

strong programs. Requests for HRI assistance far exceed our ability to support—which is why we encourage regional militaries to share their expertise with one another. During last year's Tradewinds exercise, Caribbean security officials led multiple training tracks on human rights issues, advancing our goal of increased human rights integration in multinational exercises.

Like HRI, our *humanitarian assistance and humanitarian and civic assistance programs* also yield significant 'return on engagement.' These programs help improve our partners' abilities to provide essential services to their citizens, reduce human suffering, and support economic development. But they do more than that—they remind the world that our military's greatest strength is more than our proven ability to project power around the globe, it is the generosity and compassion of our people. There is perhaps no better symbol of that generosity than deployments by our world class hospital ship USNS *Comfort*. As part of Continuing Promise 2015, medical and support staff from across the U.S. military and the region worked alongside nearly 400 volunteers to treat 122,268 patients and conduct 1,255 surgeries. In an historic event during the *Comfort* port call in Haiti, U.S. and Cuban medics worked side by side to treat Haiti's poor and exchange best medical practices. Continuing Promise is without a doubt one of the U.S. military's most impactful missions, but future *Comfort* deployments are in jeopardy due to the U.S. Navy's budget constraints.

Spotlight: Partnership with NGOs Aboard the *Comfort*

More than 400 volunteers from NGOs and academic institutions worked alongside U.S. military members, serving as doctors, nurses, and surgeons. USNS *Comfort* also hosted the NGO Operation SMILE, which provided 279 life-changing surgeries to patients in the region.

Additionally, our annual Beyond the Horizon and New Horizons humanitarian exercises help advance security, prosperity, and good governance in equal measure, while also building the capacity of partner nations to respond to disasters without request for U.S. assistance. As part of these exercises, United States Air Force and Army medical teams conducted readiness training that treated over 30,000 patients in El Salvador, Panama, and Honduras. In partnership with regional militaries and civilian agencies, we constructed disaster relief warehouses, emergency operation centers, schools, clinics, and hospitals in remote or under-serviced areas. These exercises were supported by private sector and NGO partners, who provided nearly $4 million in donations of gifts-in-kind and services for the citizens of Latin America. In these and other activities, we work closely with other U.S. agencies—including the Department of State and USAID—to support their efforts in promoting resilient democratic societies through sustainable, long-term development.

I would also like to highlight one of our most successful capacity-building efforts: the *Global Peace Operations Initiative (GPOI).* In partnership with the State Department, GPOI allowed us to train and equip more than 3,500 peacekeepers (male and female) from six partner nations. These partners are currently deployed to four United Nations (UN) peacekeeping missions in Africa and Haiti. The relatively small investment—$7.6 million in fiscal year 2015—not only supported training and equipping of peacekeepers, but also enabled El Salvador to deploy an attack helicopter unit to the U.N. Mission in Mali; allowed Peru to deploy a heavy engineer company to the U.N. mission in the Central African Republic; assisted Chile's efforts to create a regional gender integration training capability; and helped Uruguay sustain critical enabling helicopter and riverine capabilities supporting the U.N. mission in the Democratic Republic of Congo. All of these efforts help maintain stability in war-torn states and troubled regions, protect civilians, and deliver critical humanitarian aid. Given the multiple benefits of GPOI, I fully support continuing and expanding this important program throughout the region.

The *State Partnership Program* and our *multinational exercises* continue to build a strong Inter-American system of persistent defense cooperation. A force multiplier to our efforts, National Guard units from 19 states conducted 215 activities that developed core competencies in regional military forces, promoted the concept of citizen-soldiers as public servants, and reinforced our bilateral relationships with 28 countries. In the Caribbean, we conducted a highly successful iteration of our annual Tradewinds exercise, which brought together more than 750 participants from

17 different nations to work together on real-life training scenarios related to disaster response and CTOC operations.

As part of Southern Seas 2015, UNITAS—the United States Navy's longest-running annual maritime exercise—brought together North American, South American, Pacific, and African maritime forces from eight countries to improve interoperability and build working relationships at sea. Last year we had the largest U.S. Force participating in the exercise's history, courtesy of the creative employment of the USS *George Washington* and associated air wing during her transit through the region. While these types of maritime engagements offer unparalleled opportunity to engage with our partners in areas of maritime law and policy, discussion of issues like excessive maritime claims can become derailed by the United States' status as a nonparty to the United Nations Convention on the Law of the Sea. Accession to the Convention gives the United States a seat at the table and thus an immeasurably stronger position from which to engage our partners on maritime security concerns.

Finally, *contingency planning and preparation*—which includes other exercises like Panamax, Fused Response, Fuerzas Humanitarias and Integrated Advance—prepares our team to respond to regional crises and enhances interoperability with our interagency and regional partners. These efforts not only improve our planning, training, and readiness, they build invaluable relationships across agencies, departments, and governments. For example, in the event of a natural disaster in Central America, our Joint Task Force Bravo—located at Soto Cano Airbase in Honduras—will be at the forefront of our response efforts. Essentially a small aviation regiment with 18 helicopters, JTF–Bravo is our only permanently deployed contingency force in the region. The outstanding men and women of JTF–Bravo regularly conduct lifesaving search and rescue missions and provide humanitarian assistance and logistical support to Honduran and regional counterdrug operations.

We train for a variety of contingencies, one of which is a mass migration event. We work closely with our interagency partners in the State Department, the Department of Homeland Security, and other regional partners to monitor increased migrant flows. Last year, we conducted a mission rehearsal exercise at United States Naval Station Guantanamo Bay to test our ability to support a response to a humanitarian crisis in the Caribbean. As the only permanent Department of Defense base in Latin America, the United States Naval Station provides persistent U.S. presence and immediate access to the entire region. It serves as a forward operating base for DHS-led migrant operations and a distribution and staging area for foreign humanitarian assistance and disaster relief operations. If directed to execute today, resource and capacity challenges at the Naval Station would significantly impact our support to the Department of Homeland Security and the Department of State operational and contingency plans. These challenges call into question our ability to provide safe care, custody, and transportation of interdicted migrants, which is especially concerning given recent increases in migrant flows.

CRITICAL NEEDS AND CONCERNS

U.S. Southern Command is committed to honoring the trust American taxpayers place in us, and we strive to make every defense dollar count. Through better business practices, we are working to mitigate funding reductions and gain efficiencies throughout our headquarters. Our most significant challenge is under-sourcing of assets, an issue that will be compounded should sequestration return. For every additional capacity-building activity we conduct, we can further strengthen the security network that keeps our partners stable and our Homeland secure. For every additional ship and air asset we are able to dedicate to the detection and monitoring mission, we can disrupt approximately 20 more metric tons of cocaine. For every additional ISR resource we are provided, we can better illuminate threat networks in the region. Yet even with the limited resources we have, we punch well above our weight class. We are in fact, a world-class welterweight: we are fast and agile; we are well trained; and we have the strength and stamina for the long run—qualities that are essential for success against the threats and challenges in our area of responsibility.

To help mitigate shortfalls in the detection and monitoring mission, we employ creative and non-traditional approaches like adapting anti-IED technology for use in counterdrug operations in dense jungle and mountainous terrain. Looking ahead, we will continue to explore alternatives to traditional sourcing solutions, including driving innovation and experimentation into training and exercises. With a multitude of willing and welcoming partners in Latin America and the Caribbean, we have a unique experimentation training environment, perfect for expanding war gaming; testing new operational concepts, tactics, technologies and procedures; and exploring new ways to combine capabilities and improve interoperability. Addition-

ally, we will continue to pursue opportunities to use innovative ISR platforms. I especially want to thank the Congress for the additional funding, which is helping increase our domain awareness and enhance ongoing CTOC operations.

While JIATF–South—through excellent interagency and partner nation coordination—has developed impressive air and maritime awareness of drug movements, when the networks hit terra firma we go dark. To address these blind spots, we are exploring how we might partner even more closely with the interagency and partner nations to improve synchronization and fully illuminate threat networks. We will work with our Central American partners, the Department of State, the intelligence and law enforcement communities, and U.S. Country Teams every step of the way as we improve our collective effort to degrade and disrupt the corrosive operations of criminal networks.

Finally, I thank the Congress for your continued support to U.S. Southern Command's talented men and women and their families. Unfortunately, our servicemembers, especially our junior enlisted personnel, face a significant quality-of-life challenge: the lack of affordable housing. In almost all respects, Miami is the perfect city for our headquarters. I say 'almost' because the cost of living is one of the highest in the nation. Many of our assigned personnel cannot afford to live near the command, and government housing acquired through domestic leasing is expensive and extremely competitive. We are currently working with the Department of Army to develop our formal housing requirement, and we will work closely with the Congress as we move forward to improve the quality of life of our men and women in uniform.

CONCLUSION

In closing, I am sure members of this Committee will agree: nowhere is our own security more inextricably intertwined to that of our neighbors, partners, and friends than in Latin America and the Caribbean. In an increasingly chaotic and insecure world, this region can and should serve as a beacon of hope, peace, prosperity, and partnership. This is both the promise and the potential of our shared home. It is a goal *shared by our partners* and one that *we can achieve*—but only by remaining engaged and only by working together. Day in and day out, the outstanding team at U.S. Southern Command is doing exactly that: we are *building partnerships* that *protect our interests, defend our Homeland, uphold the global common good,* and *advance security, good governance, and opportunity.* Once again, thank you for your persistent, sustained support for your U.S. Southern Command, and I look forward to our discussion.

ANNEX: 2015 JOINT TASK FORCE AND COMPONENT ACCOMPLISHMENTS

JOINT INTERAGENCY TASK FORCE SOUTH (JIATF–S) KEY WEST, FLORIDA

- **Joint Interagency Task Force South** contributed to the disruption of 192 metric tons of cocaine in fiscal year 2015, worth nearly $3.9 billion wholesale. This represents 76 percent of all documented U.S. cocaine removals that were likely directed towards the U.S. market. JIATF–S employs an integrated defense forward capability for the ongoing efforts at the U.S. Southwest Border and for U.S. operations in the Western Hemisphere using tactical control (TACON) ship days, TACON flight hours, and by monitoring illicit air activity using Forces Surveillance Support Center relocatable over-the-horizon radar.
- **Operation MARTILLO:** The vast majority of JIATF–South successes came as a result of JIATF–South leadership and coordination of Operation (OP) MARTILLO, the multi-lateral effects-based operation designed to deny the Central American littoral routes to illicit traffickers. Begun on January 15, 2012, OP MARTILLO results to date include the disruption of 595 metric tons of cocaine, the seizure of $25.8 million in bulk cash, and the seizure of 1486 detainees and 478 vessels and aircraft. OP MARTILLO has had the desired effect of increasing partner nation participation in U.S. efforts to disrupt illicit trafficking and counter transnational organized crime.
- **Operational Results and Impact:** In the air domain, over the past year, JIATF–South documented a 53 percent decrease in illicit air tra20.cks destined for Central America (primarily Honduras). Decisions made by some of our partner nations to establish lethal air interdiction policies have impeded JIATF–South's efforts to share illicit air track information with those partner nations. Ultimately, air trafficking continues to be a declining percentage (3 percent) of overall cocaine flows. In the maritime domain, during the same period, JIATF–South documented a 20 percent increase in the overall volume of cocaine departing the source zone in South America. Eastern Pacific flow currently ac-

counts for more than 68 percent of documented cocaine movement. It is assessed the increase in Eastern Pacific cocaine movement is at least partially caused by trafficker adaptation to focused law enforcement pressure in the Western Caribbean. JIATF–South is currently developing strategies to better apply requisite pressure against each threat vector, so as to curtail transit options available to traffickers. The increase in documented flow is partially due to increased law enforcement reporting and contributions from partner nations to augment collective situational awareness. JIATF–South identified several transatlantic maritime cases in fiscal year 2015 and established a liaison officer at the Maritime Analysis Operations Center-Narcotics in Lisbon, Portugal to facilitate the targeting of these cases by European law enforcement agencies. JIATF–South Counter Threat Finance team targeted $30.5 million in bulk cash and closely worked with DEA Lima, Peru on several investigations. JIATF–South Container Cell supported investigations resulting in 7 MTs of cocaine seized in commercial shipping containers and continues to develop relationships to increase situational awareness of global movements of cocaine via commercial shipping.

- **Supporting Defense of the Homeland.** The establishment of three Department of Homeland Security Joint Task Forces, JTF–East, JTF–West, and JTF–Investigations in 2015 has the potential to greatly enhance the interagency effort to defend the southern approaches. JIATF–South has been integrally involved with and fully supports the development of these organizations so that efforts to counter illicit trafficking will be synchronized to produce the greatest combined effect. Since its inception in September 2012, OP Unified Resolve, the counter illicit trafficking operation supporting Puerto Rico, has substantially improved and formalized interoperability between JIATF–South, Coast Guard District 7, Coast Guard Sector San Juan, and the Customs and Border Protection (CBP) Office of Air and Marine Caribbean Air and Marine Branch in our shared Counter Illicit Trafficking operations. Under the new DHS JTF construct OP Unified Resolve will be coordinated by Joint Task Force-East.
- **Role of Partner Nations:** In fiscal year 2015, 50 percent of JIATF–South disruptions were marked by partner nation participation. The role of our Latin American partners should not be understated. Of the 250 illicit trafficking events disrupted by JIATF–South in fiscal year 2015, 88 of these (35 percent) would not have been successful without the support of our international partners. Many Central American partners have greatly increased their ability to respond to illicit trafficking cases cued by JIATF–South including Guatemala, Panama, and Costa Rica who collectively responded to twice the number of events in fiscal year 2015 compared to fiscal year 2014. The success of JIATF–South continues to draw support as several additional nations have expressed interest in joining the international effort to counter illicit trafficking. The contributions of ships and aircraft to the Transit Zone effort by the U.K., France, the Netherlands, and Canada continue to be significant and needed.
- **Innovation and Transition to Counter Network Operations:** Recognizing the holistic nature of the threats and challenges to the U.S. from TCOs in the Western Hemisphere, JIATF–South's planning process is orienting the command and its focus towards countering the organizations responsible for undermining the stability and security of the region. With their authorities firmly planted in the detection and monitoring (D&M) of illicit trafficking, JIATF–South will employ several initiatives to focus their core mission set on illuminating illicit networks for disruption. Network focused D&M will rely on Tactical Development Analysis, Threat Finance Information, and Container Cell intelligence to develop awareness and increase effectiveness in a fiscally austere environment. Additionally, JIATF–South is leveraging interagency partnerships to develop the ability to detect and monitor illicit trafficking activity, using the cyber domain.

JOINT TASK FORCE GUANTANAMO (JTF–GTMO)

GUANTANAMO BAY, CUBA

- **Safe and Humane Custody and Control:** JTF–GTMO conducted safe, humane, legal, and transparent custody and control of detainees, including those convicted by military commission. High Value Detainees (HVDs) and non-HVDs maintained family contact via mail, telephone calls and, in areas which support this service, videophone conferences coordinated by the International Committee of the Red Cross (ICRC). High quality care, to include routine and urgent medical care, was provided to detainees on a 24-hour basis. General surgical care, dental care, preventative medicine, optometry and mental health

services were provided, or arranged, as was targeted specialty care on a recurring basis.

- **Legal and Transparent Operations:** Assessments of detention conditions by the ICRC continued with four visits in 2015. All detainees were provided the opportunity to meet with ICRC delegates and medical personnel during these visits. Additionally, detainees are granted access to legal representation. For non-High Value Detainees, during fiscal year 2015 JTF–GTMO scheduled 385 habeas meetings (259 were completed) and 222 commissions meetings (141 completed). With respect to High Value Detainees, JTF–GTMO scheduled 43 habeas meetings (29 completed) and 1,781 commissions meetings (894 completed). Committed to transparency, JTF–GTMO hosted 75 media representatives from 40 domestic and international news organizations and answered hundreds of media queries during the past year. Similarly, JTF–GTMO also hosted 166 Distinguished Visitor visits totaling more than 1100 personnel, including seven Congressional Delegations, Service Chiefs and senior DOD, DHS, DOJ and DOS policy makers.
- **Military Commissions:** Support for the Military Commissions process is a priority of JTF–GTMO. These proceedings are open to observation by the media, victim family members, non-governmental organizations and other visitors. In fiscal year 2015, JTF–GTMO supported 3 days of hearings which addressed pre-trial motions in the case of United States *v.* Mohammad, et al., the five individuals accused of coordinating the September 11, 2001 attacks on the United States (referred to in the press as "the 9/11 Five") and 4 days of hearings to address pre-trial motions in the case of United States *v.* Al Nashiri, the alleged USS *Cole* bomber. Additionally, the Court arraigned and conducted 7 days of hearings to address pre-trial motions in the case of United States *v.* al Iraqi, an alleged al Qaeda commander charged with law of war offenses.
  - In the "9/11 Five" military commission, the judge's 7 January 2015 interim order bars female guards from touching (absent exigent circumstances) the 9/11 Five detainee-accused during movements to and from attorney-client meetings and commission hearings. This order remains in effect until the judge hears evidence and argument and makes a final ruling. The cancellation of several commissions sessions in 2015 prevented the resolution of this issue. The practical effect of the judge's order is that it prohibits female guards from participating in commissions-related movements of the 9/11 Five detainee-accused. Male guards therefore complete extra duties that female guards may not perform. The judge's order resulted in fifteen (15) Equal Opportunity (EO) complaints because a portion of the guard force cannot perform their assigned duties based on gender. The EO complaints are unresolved.
- **Infrastructure:** Sustainment costs continue to rise due to the many facilities at JTF–GTMO that are past their designated lifecycle. Sustainment, Restoration and Modernization (SRM) costs have steadily increased the last four years ($19M, $20M, $21M, $24M). Eight military construction (MILCON) projects, valued at $231M, were planned for fiscal year 2015–18 to address infrastructure concerns. Six of those projects, valued at $207M, or 90 percent of the total Military Construction (MILCON) budget were cancelled in January 2015.
- **Detainee Movement Operations:** JTF–GTMO conducted 12 Detainee Movement Operations during fiscal year 2015 which transferred 35 detainees to 10 different countries.

JOINT TASK FORCE-BRAVO (JTF–B)

SOTO CANO AIR BASE, HONDURAS

- Joint Task Force-Bravo is a forward-based expeditionary joint task force operating as U.S. Southern Command's lead forward element in the Central American (CENTAM) region. The Joint Task Force integrates and synchronizes efforts, provides assets and capabilities to enable others to operate, and executes operations in support of the CCDR's priorities of Countering Transnational Organized Crime (CTOC), Humanitarian Assistance / Disaster Relief, Building Partner Nation Security Capacity, and Contingency planning/support to promote regional cooperation and enhance security throughout Central America. JTF–Bravo performs the following missions:
- Facilitates integration of Partner Nation and U.S. Government agencies to develop a common understanding of Transnational Criminal Organizations (TCO) and enables operations to counter identified TCO networks.
- Conducts combined operations with military and law enforcement elements from the U.S. and Partner Nations to disrupt and deter organized crime networks in Central America.

- Consistently refines and evolves a common understanding of the environment and its efforts to enable partners to counter threats to both the CENTAM region and the American Homeland
- Provides a running estimate of the environment to both synchronize and integrate operations to achieve the right, overall effects against Criminal Transnational Organizations / Illicit Facilitation Networks.
- Supports efforts dedicated to Building Partner Capacity by providing subject matter expertise and capabilities throughout CENTAM in areas ranging from medical support to the local population and fire-fighting capabilities, to logistical support to partner nation militaries.
- Serves as U.S. Southern Command's first responder for natural disasters and humanitarian events within CENTAM.
- Is prepared to provide SOUTHCOM a no-notice command and control node throughout CENTAM in a natural disaster scenario.
- Manages the only all-weather day/night C–5 Galaxy-capable airfield in CENTAM, supporting ongoing operations and maintaining readiness to facilitate humanitarian assistance and disaster relief throughout CENTAM.
- JTF–B's operations enable DOD, DOS, IA, and PN efforts throughout CENTAM. Over the past year, JTF–B provided air movement support to the Honduran military for twelve iterations of Operation CARAVANA during 2015 (moving 3,525 pax and 135,500 pounds of equipment), allowing them to position forces into isolated regions of eastern Honduras and posturing them to effectively deter Illicit Facilitation Networks. JTF–B also conducted 25 medical missions during 2015. These missions provided vital care to underserviced communities within Central America, increasing the local population's faith in government, providing HN medical training, and fostering goodwill across the region. In addition, JTF–B also assisted the Government of Belize in drug eradication efforts and supported U.S. Law Enforcement and military units in training the Belizean Defense Forces—providing time and space as the Belize forces continue to develop capacity.
- Finally, JTF–B conducted or directly supported a number of vital Contingency Operations, such as a high visibility mission to repatriate Central American citizens back to their home counties, supported 15 MEDEVAC missions in 2015—including a Honduran soldier seriously injured in a drug interdiction off the shore of Gracias a Dios, Honduras, a Search and Rescue mission of a missing American off the coast of Roatan, Honduras, as well as in the search effort for survivors of a capsized ferry off the coast of Nicaragua. JTF–B's continuing activities demonstrate U.S. commitment to CENTAM, posturing our Nation as the partner of choice and a force that will serve the people of Central America for years to come.

U.S. ARMY SOUTH (ARSOUTH)

HEADQUARTERS: FT SAM HOUSTON, TEXAS

- **Security Cooperation:** ARSOUTH conducted 164 security cooperation events with 23 countries in U.S. Southern Command's area of responsibility. These events represent both engagements and building Partner Nation capabilities with other militaries in the region.
- **Countering Transnational Organized Crime (CTOC):** ARSOUTH, with the support of the Texas Army National Guard, 72nd IBCT, conducted CTOC tactical training in Guatemala and Honduras. They also conducted information training in Guatemala, Honduras and El Salvador. The four Mission Essential tasks trained were: Border Control Operations, Command Post Activities, Information Support to Operations, and Sustainment Operations. These training efforts contributed to the capacity-building efforts of our Partner Nations, enabling selected elements of their security forces to better focus on basic border control and security operations. U.S. Army South has supported 60 operations in the SOUTHCOM AOR, contributing to the arrest of 71 individuals including 14 HVT's, and seizure of 12.5 metrics tons of cocaine and $12.3 million. These operations have contributed to the disruption of TCO networks especially in Honduras and Guatemala.
- **Information Security Cooperation:** In addition to the CTOC training effort, ARSOUTH conducted Information engagements as a part of the Distinguished Visitor Program, Bilateral Staff Talks, and all regional Professional Development Exchanges, enabling military information capacity building in support of Guatemala, Honduras, El Salvador, Colombia, Chile and Peru.
- **Counter Terrorism:** ARSOUTH conducted 10 Subject Matter Expert Exchanges in six countries that included over 750 host nation soldiers. The en-

gagements included: Medical, Search and Rescue, Logistics, Maintenance and Communications.

- **Civil-Military Relations:** ARSOUTH conducted Civil-Military Relations Professional Development Exchanges in Brazil, Colombia, Chile, Dominican Republic, Nicaragua, Panama, Peru, Guatemala, Honduras and El Salvador, improving the ability of these countries to conduct inter-organizational coordination during humanitarian assistance / disaster relief operations and in countering transnational criminal organizations. These exchanges demonstrate the synergy and value of interagency collaboration and provide an effective forum for executive-level information-sharing, both bilaterally and regionally.
- **Humanitarian Assistance Program (HAP):** HAP focuses on activities which help build partner nation capacity to provide essential services to their populace, with particular emphasis on response to disasters and other crises, reinforcing citizen security, and sustaining stability in a particular country or throughout the region. ARSOUTH, as USSOUTHCOM's Executive Agent for the construction facet of HAP, completed 21 projects in 2015, and also initiated the planning for 22 future construction projects across the AOR.
- **Global Peace Operations Initiative (GPOI):** GPOI is a security assistance program to enhance international capacity to conduct United Nations and regional peace support operations. ARSOUTH, as USSOUTHCOM's GPOI construction executive agent, executed 14 projects in Central and South America and initiated the planning for three future projects (El Salvador and Uruguay).
- **Conference of the American Armies (CAA):** The CAA (20 member Armies, 5 observer Armies and two International Military Organizations) strengthens relationships and improves interoperability in peacekeeping and disaster relief operations through the creation and implementation of practical initiatives approved by the Army commanders. Army South organized and led delegations representing the U.S. Army Chief of Staff at conferences on IEDs, Disaster Response, Interagency Operations and CAA Procedures in Colombia, Mexico, Brazil and Chile.
- **Exercise Beyond the Horizon (BTH):** Humanitarian and Civic Assistance Field Training Exercises were conducted in El Salvador and Panama. BTH El Salvador yielded six engineer projects and three general Medical Readiness Training Exercises (MEDRETEs), treating a total of 24,627 patients. In the El Salvador effort, over 1,760 U.S troops participated, and the host nation provided 163 security, engineering and medical personnel. BTH Panama included an Ophthalmology specialty MEDRETE which removed 250 cataracts from prescreened patients, while a general MEDRETE treated 4,760 local patients. Forty eight U.S. troops participated in these efforts, while the Panamanian Ministry of Health and the Panamanian National Police provided over 60 personnel for this bilateral collaborative initiative.
- **Exercise Fuerzas Aliadas—Humanitarias (FA–HUM):** This year's Humanitarian Assistance/Disaster Relief Table Top Exercise (TTX) was hosted by Honduras, to build Partner Nation capacity to respond to a major disaster and strengthen military/security force collaboration and cooperation in the region. The TTX exercised the coordination, response and integration of Honduras' SINAGER (National Risk Management System) members and other International Cooperation members. It greatly improved their ability to respond to an adverse event, activating SINAGER and national, regional, and international emergency protocols.
- **Exercise PANAMAX 2015:** This year's Joint/Combined operational exercise focused on the defense of the Panama Canal and designated ARSOUTH as HQ, Multi-National Forces-South. The Crisis Action Planning Phase had 127 participants—82 U.S. and 45 Partner Nation personnel from 9 countries. ARSOUTH also hosted the CFLCC with Colombia as the lead country which included 62 personnel from 15 Partner Nations and 29 U.S. personnel. In addition, ARSOUTH participated in a bilateral exercise with the Government of Panama (PANAMAX–Alpha) where 20 United States personnel worked with the Panamanians coordinating United States forces assistance during simulated security operations.
- **Exercise Integrated Advance 2015:** For 2015 Integrated Advance is a Command Post (CPX) and Field Training Exercise (FTX) focused in the Caribbean and designed to conduct combined security, peacekeeping and selected maritime operations. This Joint operational exercise focused on the interagency planning required for a United States response to a Caribbean Mass Migration. ARSOUTH formed the core of the JTF–MIGOPS with 127 personnel (including 52 from other military services and government agencies).

U.S. NAVAL FORCES SOUTHERN COMMAND (USNAVSO)

HEADQUARTERS: MAYPORT, FLORIDA

- U.S. Naval Forces Southern Command/U.S. FOURTH Fleet (USNAVSO/FOURTHFLT) employs maritime forces in cooperative maritime security operations in order to maintain access, enhance interoperability, and build enduring partnerships that foster regional security in the USSOUTHCOM Area of Responsibility (AOR).
- **Continuing Promise 2015 (CP 15):** U.S. Navy Hospital Ship USNS *Comfort* completed her longest and most successful CP in history, conducting mission stops in 11 partner nations (Belize, Guatemala, Jamaica, Nicaragua, Panama, El Salvador, Colombia, Dominica, the Dominican Republic, Honduras, and Haiti) from April through September 2015. The CP–15 medical team treated 122,268 patients, including 1,255 surgeries conducted aboard the *Comfort,* along with 279 surgeries conducted by the non-government organization "Operation Smile" aboard the *Comfort.* The CP–15 also featured 1,285 subject matter expert exchanges, 94 engineering projects, and 85 community relations events. Almost 400 members of non-government organizations deployed as part of the CP team, which included approximately $5.24 million dollars in donations to the 11 partner nations. CP–15 sent a strong message of U.S. commitment and partnership with the people of the Caribbean, Central and South America, and directly impacted more people in our partner nations than any other U.S. Navy mission.
- **Southern Seas 2015 (SS 15):** Task Force 49 (TF 49), led by Commander Carrier Strike Group Nine, deployed to the USSOUTHCOM AOR, sailing around South America from the end of September through mid-December 2015. TF–49 participated in both UNITAS Pacific, hosted by Chile, and UNITAS Atlantic, hosted by Brazil. This was the largest and most capable U.S. Force to participate in UNITAS in the more than 50-year history of the multi-national maritime exercise. UNITAS is the longest-running naval exercise in the world. USS *George Washington* also conducted multi-day bilateral exercises with the Japan Self-Defense Force, the Peruvian Navy, the Chilean Air Force, and the Brazilian Navy as well as receiving distinguished visitors from Panama, Colombia, Uruguay, Argentina, and Paraguay.
- **Southern Partnership Station (SPS):** SPS is a series of Navy/Marine Corps engagements focused on Theater Security Cooperation (TSC), specifically Building Partner Capacity (BPC), through Subject Matter Expert Exchanges (SMEEs) with partner nation militaries and civilian security forces. SPS engagements include Community Relations projects that focus on our partnerships, shared interests, and shared values. 2015 SPS Deployments:
  - **SPS Joint High Speed Vessel 2015 (SPS JHSV 15):** USNS *Spearhead* built partner capacity while conducting TSC engagements through the use of Adaptive Force Packages (AFPs) ashore in Belize, Guatemala, Colombia, and Honduras. The sailors, marines, soldiers, airmen, NCIS agents, and civilian mariners making up the *Spearhead* Team built upon the firm foundation of the JHSV 14 deployment, and the persistent annual presence of *Spearhead* and the AFPs in the USSOUTHCOM AOR are reaping rewards of partnership and interoperability.
  - **SPS Oceanographic 2015 (SPS OCEANO 15):** With the support of the Naval Oceanographic Office, survey ship USNS *Pathfinder* conducted hydrographic surveys in the Western Caribbean, shore-based Fleet Survey Teams conducted hydrographic surveys in coastal waters of Peru, Honduras, and Jamaica, and a Light Detection and Ranging aircraft and crew conducted hydrographic surveys in the coastal waters of Honduras. All SPS OCEANO surveys are conducted with the assistance of partner nation personnel and equipment, and support USSOUTHCOM's Oceanographic, Hydrographic, and Bathymetric Program and the Chief of Naval Operations Global Maritime Partnership Initiative. All hydrographic survey and environmental assessment data is shared to enable safe and effective maritime navigation and access to the littoral for naval and joint forces.
- **Operation MARTILLO:** Two frigates, one destroyer, one coastal patrol ship, JHSV SPEARHEAD, four fixed-wing maritime patrol aircraft squadrons, and one scientific development squadron detachment deployed to support Operation MARTILLO, conducting D&M Operations under the tactical control of Joint Interagency Task Force South, targeting illicit trafficking routes in the waters off Central America.

- **USS *Columbus:*** The *Los Angeles*-class fast attack submarine deployed to the USSOUTHCOM AOR. *Columbus* visited United States Naval Station Guantanamo Bay, Cuba, and made two Panama Canal transits.
- **PANAMAX 2015:** Chile served as Combined Forces Maritime Component Commander (CFMCC) for the annual PANAMAX Exercise, which exercises defense of the approaches to the Panama Canal. Chile led a multinational staff of more than 50 military and civilian personnel from 16 Partner Nations (including the U.S.), all based at USNAVSO/FOURTHFLT Headquarters in Mayport. In this year's PANAMAX, the CFMCC staff worked through the Navy Planning Process to produce a Concept of Operations (CONOP) with notional forces, for presentation to the Combined Joint Task Force led by U.S. Army South. Now in its 13th year, PANAMAX focuses on ensuring the defense of the Panama Canal, increasing multinational force interoperability while supporting the training requirements of all participating nations' civil and military services.

12TH AIR FORCE (AIR FORCES SOUTHERN)

HEADQUARTERS: DAVIS-MONTHAN AFB, TUCSON, ARIZONA

- **Security Cooperation:** Twelfth Air Force (Air Forces Southern) (hereafter AFSOUTH) led 50 security cooperation events in 11 USSOUTHCOM partner nations. Engagements focused on countering transnational organized crime, communications, aircraft operations and maintenance, ISR, space, cyberspace security, safety, command and control, space capabilities, aerospace medicine, air evacuation, expeditionary medicine, information sharing, mobility, Future Engagement Talks, logistics, aircrew search and rescue, and humanitarian assistance and disaster relief. The 571st Mobility Support Advisory Squadron completed 19 air advisor events in Belize, Brazil, Colombia, Curacao, El Salvador, Guatemala, Honduras, Jamaica, Panama, and Peru, training 417 partner nation military members.
- **Legal:** The AFSOUTH Staff Judge Advocate promoted Law of Armed Conflict adherence and Human Rights Law in 9 legal engagement activities with Brazil, Chile, Colombia, Guatemala, Honduras, and Trinidad & Tobago.
- **Airlift Missions:** AFSOUTH executed 85 theater airlift missions, moving more than 4,267 passengers and 406 tons of cargo throughout USSOUTHCOM's area of responsibility.
- **System of Cooperation among the American Air Forces (SICOFAA):** SICOFAA strengthens relationships and improves interoperability in peacekeeping and disaster relief operations through the creation and implementation of practical initiatives approved by the commanders of the 20 SICOFAA member Air Forces and the 5 observer Air Forces. USAF Chief of Staff and the 12 AF (AFSOUTH) Commander participated in the annual American Air Chiefs Summit (CONJEFAMER) in Mexico City in June 2015. Delegates from USAF and AFSOUTH participated in five SICOFAA committee meetings and the CONJEFAMER planning conference.
- **Medical Support:** AFSOUTH provided medical planning and oversight of detainee movement operations and forward operating location missions; delivered operational health expertise and steady-state planning for contingency and real world operations across USSOUTHCOM AOR; supplied counterdrug operations medical guidance and planning support; and coordinated USAF medical engagements for New Horizons and Beyond the Horizon exercises. Surgeon General provided Crisis Action Team support for PANAMAX and Integrated Advance. AFSOUTH International Health Specialists conducted 15 Theater Security Cooperation global health engagements with partner nations addressing flight medicine, air evacuation, force health protection, and expeditionary medicine advancing regional collaboration across the aerospace medicine enterprise.
- **New Horizons 2015 (Honduras):** AFSOUTH trained 120 U.S. Military personnel in this joint exercise. Engineering personnel constructed one new 1400 square foot school and drilled two water wells supporting 3,000 Honduran citizens. During the exercise, deployed medical personnel not only provided care for U.S. members, but also volunteered their medical capabilities to the local hospital emergency room by treating 678 Honduran civilians and providing over 100 surgery consults. Additionally, deployed communications support personnel wired the local hospital offices for internet capability. International Health Specialists conducted a 12 day infectious disease assessment for the local Ministry of Health and provided a final report with recommendations to improve local health conditions.
- **ISR:** AFSOUTH provided command and control for ISR missions in support of USSOUTHCOM priorities. AFSOUTH executed 939 ISR missions and 5,423

flight hours, resulting in over 4,544 images and nearly 9,235 minutes of video. This information assisted in numerous drug trafficking seizures in the SOUTHCOM AOR by the United States and its partner nations in fiscal year 2015. AFSOUTH continues to assist critical partner nations in counter-drug/counter-narcotics trafficking efforts and is currently working to enable Air Force operational and ISR capability in both Guatemala and Honduras. AFSOUTH assists both Colombia and Peru in maintaining the strategic initiative against illegally-armed combatants who previously threatened the very existence of those nations.

MARINE CORPS FORCES SOUTH (MARFORSOUTH)

HEADQUARTERS: DORAL, FLORIDA

- **Theater Security Cooperation:** In 2015, MARFORSOUTH completed more than 120 Security Cooperation events in 21 countries. This resulted in over 750 Partner Nation Marine Corps and Defense Force personnel trained. While continuing to foster long-term relationships based on mutual respect and common values, MARFORSOUTH conducted a variety of key leader engagements throughout the USSOUTHCOM area of responsibility that reinforced our commitment to partner nation leadership. To meet shared security objectives in combatting transnational organized crime, MARFORSOUTH delivered tailor-made training to our partners by establishing persistent presence security cooperation teams in Belize, El Salvador, Guatemala, and Honduras. This was training often conducted hand-in-hand with our Colombian Marine Corps partners through the United States/Colombia Action Plan.
- **SPMAGTF–SC–15:** From June to November 2015, U.S. Marine Corps Forces, South deployed Special-Purpose Marine, Air, Ground Task Force-SOUTHCOM (SPMAGTF–SC) to Central America. Leveraging a force one-tenth the size of those in CENTCOM and AFRICOM, SPMAGTF–SC temporarily deployed to one of the most austere locations in Honduras to provide support to partner nation militaries and populations living in extreme poverty and at the highest risk for involvement in illicit activities. Using SPMAGTF-organic aircraft and engineering support, marines and sailors throughout Honduras, El Salvador, Guatemala, and Belize focused on building and maintaining partnership capacity through shared values, challenges, and responsibility. The Marines built three schools, improved a partner nation military airfield, and provided essential water services to those in need. This force was instrumental in bringing together the national level government of Honduras with remote populations mostly segregated by terrain, expanding governance and visibility on key issues in the region.
- **SPS–JHSV 15—Marine Detachment (MARDET):** MARFORSOUTH deployed 35 Marines and Sailors to Guatemala and Honduras in support of United States Naval Forces Southern Command/United States Fourth Fleet's Southern Partnership Station (SPS) initiative. The MARDET provided engineer support to the SPS mission and met emergent requirements under OPERATION ESCUDO UNIDO. This is the first iteration of SPS that included a USMC Deputy Mission Commander, who was an integral part of the Navy Expeditionary Combat Command's C2 structure for the mission. 32 of the engineers supported airfield construction at Mocoron in Gracias a Dios, as well as humanitarian construction assistance and water purification projects in the area.
- **Tradewinds Phase II (Ground):** In June 2015, MARFORSOUTH, in partnership with the Belize Defence Force, Canada, and 17 other partner nations from the Caribbean Region, executed Exercise Tradewinds 2015 Phase II (Ground), a combined Field Training Exercise (FTX) in Belize, in order to enhance combined Counter Transnational Organized Crime (CTOC) operations capability and promote interoperability and multinational relationships throughout the theater. There were over 400 participants in the Belize-hosted, MARFORSOUTH-led ground portion of the exercise that accomplished the capacity building exercise through five distinct exercise tracks in a Subject Matter Expert Exchange (SMEE). The tracks included nine days of interoperability training in command and control, jungle tactics, military support to law enforcement, instinctive shooting, and riverine skills. Of note, Tradewinds 2015 facilitated the positive increase of mil-to-mil relationships between Mexico and Belize that resulted in training and cooperation that was exclusive of the exercise and enhances the border security of both nations.
- **MLAC–15:** In August 2015 United States Marine Corps Forces, South executed the Marine Leaders of the Americas Conference in Cartagena, Colombia to increase professional exchanges and strengthen relations among naval infantry

forces within the Western Hemisphere. This sixth iteration was co-hosted by commander, United States Marine Corps Forces Command on behalf of the Commandant of the U.S. Marine Corps, U.S. Marine Corps Forces, South and the Infanteria de Marina de Colombia. This event provided the Commandant of the Marine Corps with an opportunity to meet and engage senior Marine Corps and naval infantry leaders from 15 partner nations.

- **UNITAS Amphibious 2015:** From 14–25 November 2015, approximately 1,000 representatives from Brazil, Canada, Chile, Colombia, Mexico, Paraguay, Peru, and the United States participated in UNITAS Amphibious 2015, a combined Field Training Exercise in the vicinity of the Ilha do Governador and Ilha da Marambaia, Brazil, in order to enhance interoperability in Amphibious Operations, and Humanitarian Assistance/Disaster Relief (HA/DR) missions. The U.S.-sponsored exercise, UA 2015, develops and sustains relationships—which improve the capacity of our PN security forces to achieve common desired regional goals. This annual exercise fosters friendly cooperation and understanding among all participating forces.
- **Security Augmentation Force (SAF):** The SAF is MARFORSOUTH's designated company of marines that reinforces Diplomatic Missions in the AOR, as required in support of 'New Normal' requirements. In close coordination with Department of State, the SAF is postured in CONUS should an Ambassador decide that the local guard force is unwilling, unable, or insufficient to provide security to his mission. While there are currently no high threat posts in the AOR, the potential for a natural disaster is possible for some Embassy locations. MARFORSOUTH deploys its Marine Liaison Element to visit each Embassy, solidifies plans of action with the Country Team, and captures relevant information that will enable SAF in rapidly responding to crisis.

SPECIAL OPERATIONS COMMAND SOUTH (SOCSOUTH)

HEADQUARTERS: HOMESTEAD, FLORIDA

- **Building Partner Capacity:** SOCSOUTH elements worked with Partner Nation units in Belize, Brazil, Colombia, the Dominican Republic, El Salvador, Honduras, Guatemala, Guyana, Panama, and Peru to improve their capacity to conduct ground and maritime interdiction, broaden and reinforce their civil affairs programs, engage in Military Information Support Operations (MISO), and develop their intelligence capacities. Through active engagement, SOCSOUTH helped Partner Nations develop self-sustaining capabilities to better protect themselves, contribute to regional security and stability, and collaborate with U.S. and other forces.
  - SOCSOUTH used episodic engagements-including 26 Joint Combined Exchange Training (JCET) events—with multiple Central American, South American, and Caribbean partners to develop United States forces' skills and enhance Partner Nation interoperability.
  - In Brazil, SOCSOUTH JCETs allowed United States and Brazilian counterterrorism forces to share best practices for operating in a range of complex environments and assisted the Brazilians' capacity building efforts in preparation for the upcoming Olympic Games.
  - In Colombia and Peru, SOCSOUTH continued to partner with these Andean Ridge nations as they confronted narco-terrorist insurgencies and global illicit trafficking networks. Colombia's enhanced capacity is a significant supporting element of that nation's ongoing peace process.
  - In Honduras, SOCSOUTH teams and Colombian counterparts continued to help train National Police officers of the TIGRES special response unit as part of expanded United States support to Honduran authorities as they confront sources of insecurity in urban and remote rural areas.
  - In Belize, El Salvador, and Guatemala, SOCSOUTH teams engaged the Partner Nation in cooperative activities to reinforce their Naval Special Forces maritime interdiction capabilities. Guatemalan and Salvadoran Naval Special Forces conducted seven major maritime interdiction operations in support of Joint Interagency Task Force-South's (JIATF–S) multinational collaborative efforts against regional illicit traffickers.
- **Civil Affairs:** In 2015, 14 civil affairs teams and civil-military support elements engaged eight Partner Nations as they worked to enhance civil-military relations, reduce the vulnerability of key populations impacted by transnational organized crime or violent extremism, and improve/extend governance in underserved regions.
- **Military Information Support Operations:** SOCSOUTH maintained military information support teams in six Partner Nations supporting Colombia's

Demobilization and Counter Recruitment Programs, Guatemalan Interagency Task Forces, Panamanian security services' outreach programs in the Darien border region, the global DOD Rewards Program, and United States Government Anti-Trafficking in Persons efforts. These activities supported a broad range of efforts against transnational organized criminal and violent extremist organizations.

- **Intelligence Analytical Support to U.S. Country Teams:** SOCSOUTH provided support to U.S. Country Teams efforts focused on terrorism, human smuggling network s, and transnational organized crime.
  - SOCSOUTH helped develop host nation capabilities and country team support through a number of subject matter exchanges.
  - SOCSOUTH supported multiple U.S. Country Team and Homeland Security Investigations (HSI) collaborations with Partner Nations, with emphasis on countering Special Interest Aliens involved in cross-border criminal activities.
- **Building Intellectual Capital:** SOCSOUTH, in conjunction with the Colombian Joint Staff College, conducted six Counter-Terrorism Fellowship Program (CTFP)-funded seminars in Bogota, Colombia during 2015. Subject-matter expert presenters from the United States, Colombia, and other nations collaborated with hundreds of participants from 18 Western Hemisphere and NATO countries. Late in the year, SOCSOUTH worked with Partner Nation defense and security institutions in El Salvador to build a complementary regional CTFP series in that country.
- **Fuerzas Comando 2015:** Fuerzas Comando is a USSOUTHCOM-sponsored, SOCSOUTH-executed multinational exercise featuring a Special Operations skills competition and a Senior Leader Seminar designed to promote military-to-military relationships , increased interoperability, and improved regional security. Approximately 700 military, law enforcement, and civilian personnel took part. The 2015 skills competition was held in Poptun, Guatemala and included participation by 18 Partner Nations and the United States. In the city of Antigua, distinguished representatives from each nation discussed approaches to combating terrorism, organized crime, and illicit trafficking at the Senior Leader Seminar.
- **Fused Response 2015:** SOCSOUTH executes an annual CJCS-directed exercise to validate time sensitive crisis action planning, as well as training, readiness, interoperability and capability of Special Operations Forces in support of regional crises and contingencies. Fused Response 2015 was a Joint and Combined exercise held across several locations in Honduras. United States military and civilian personnel and aircraft operated with their Honduran counterparts to refine rapid crisis response procedures and learn from each other's best practices.
- **Panamax 2015:** In this annual USSOUTHCOM-sponsored, 19-nation exercise, regional forces support the Government of Panama as it protects safe passage through the Panama Canal, ensures its neutrality, and preserves its national sovereignty. SOCSOUTH took part as a member of the multinational Special Operations team led by Brazil.
- **Gator Aide 2015:** Exercise Gator Aide is a Personnel Recovery exercise designed to validate USSOUTHCOM's non-conventional assisted recovery capabilities. SOCSOUTH worked with U.S. interagency partners to enhance each other's readiness to prepare for, plan, and conduct specialized search and rescue operations throughout the region.

Chairman MCCAIN. Thank you very much, Admiral Tidd.

Admiral Gortney, it's been described by many Governors and law enforcement individuals in the Northeast and the Midwest that the drug overdose deaths of manufactured heroin is now, in the view of some Governors, a, quote, "epidemic." That is now being brought to my attention, and many, many others, particularly those who represent these States. How's it getting in?

Admiral GORTNEY. It's coming through the traditional legal border crossings in very small quantities, some——

Chairman MCCAIN. By individuals or vehicles, or both, or——

Admiral GORTNEY. Both. Both, sir. By very small quantities, because of the profit margin. I was just down in—at the San Diego-Tijuana border crossing, an immense challenge separating the legal versus the illegal activity that comes across the border and how the

technology is—that our Custom and Border Patrol and Immigration are using is being circumvented by a very adaptable enemy.

Chairman MCCAIN. What do we need to do?

Admiral GORTNEY. Well, two things, sir. We need to work on the technologies that allow us to detect this. We need to work at the root cause within Mexico, in the case of the poppy production and the eradication of the poppies. We'd work with SEDENA [Secretariat of National Defense] and SEMAR [Secretariat of Navy] on that, in our mil-to-mil responsibilities, as well as working with our partners north of the border. We do that through JTF [Joint Task Force] North, helping them improve their—our mission partners improve their capability and capacity where——

Chairman MCCAIN. Should we expect more of the Mexican Government?

Admiral GORTNEY. I would think we—yes, sir, we do need to expect more of the Mexican Government and all of the agencies within the Mexican Government.

Chairman MCCAIN. The manufactured heroin is much easier than cultivated heroin.

Admiral GORTNEY. Yes, sir. Between heroin and methamphetamines, the precursors in methamphetamines are coming from China, factories in China, and we have to tackle all of the illicit drugs that are coming across the border, sir.

Chairman MCCAIN. Part of it, as you mentioned in your remarks, it has got to do with the fundamentals of economics, and that's supply and demand. If there's a demand, there's going to be a supply.

Admiral GORTNEY. That's absolutely correct, sir.

Chairman MCCAIN. Admiral Tidd, you, I think very correctly, applauded the agreement in Colombia with the FARC. I think it is a testimony to the Colombian people and government, first of all, but it is a sign and a story that we should understand better, and that is, it's been a long-term investment by the United States of America of billions over time because the heroin—excuse me—the cocaine was obviously a threat to the United States of America. But, now we are hearing that poppy cultivation—or cocaine—is way up. Is that correct?

Admiral TIDD. Yes, sir, that's correct. I think in the next set of figures that will come out, we're going to see a very significant increase in coca production.

Chairman MCCAIN. With the cocoa production up, that means there's going to be more cocoa coming into the—cocaine coming in the United States.

Admiral TIDD. I'd—that's what I would expect, yes, sir.

Chairman MCCAIN. That's where the market is. What do we need to do there? Because obviously it will lower the cost of cocaine, the—more people will find it affordable. What do we do there?

Admiral TIDD. Sir, I think it's a multifaceted approach. First and foremost, we need to continue to stand steadfast with our Colombian friends. As you recognized, it's a—it is a relationship that extends over decades. We will need to continue to work very closely with them.

With regard to the actual movement of cocaine, those transnational criminal networks that have moved the cocaine, we

need to do everything that we can to apply pressure on them to detect, to illuminate, and then to disrupt them. That disruptive work will require the efforts of both—all of our interagency partners as well as allied partners.

Chairman MCCAIN. Admiral Gortney, what—we know that Mr. Baghdadi, the head of ISIS, has—is sending people out of ISIS in the wave of refugees that have left Syria and Iraq. What is the threat of someone—individual or individuals coming across our southern border?

Admiral GORTNEY. I think if someone can find a seam to enter into our country, legally or illegally, they're going to exploit that particular seam. That's why we work very closely with our mission and partners to the south while we look into the drugs, we look to the left and right to see, within those seams, if there's anything else that be moving—in this case, terrorists.

Chairman MCCAIN. What more do we need to do in order to secure our southern border? Have we made progress in securing our southern border, or is it basically the status quo?

Admiral GORTNEY. I think the efforts have been effective, but not nearly as effective as we would like them to be. We're working against a very adaptive enemy who will exploit the seams. As we make an advance in one area, they're very quickly able to overcome that. We're not able to stay out in front of that, their OODA [observe, orient, decide and act] loop, so to speak. That's where we need to—that's where we need——

Chairman MCCAIN. Well—so, what do we need to do? Isn't it true that more and more of those who are being apprehended are what we call OTM [on the move], other than Mexican?

Admiral GORTNEY. That's correct. There's—as I look at it, it's the mass migration that are escaping the conditions within Central America, and the cartels are moving the people. The other problem is the drugs. The one that is the most concerning to us is the heroin that is being produced and shipped out of Mexico, and the methamphetamines. Moved by the same cartels.

Chairman MCCAIN. What do we need to do?

Admiral GORTNEY. We need to tackle both. They both have different problem sets.

Chairman MCCAIN. I mean, do we need more Border Patrol? Do we need more towers? Do we need more—in other words, what more do we need to do to increase our border security?

Admiral GORTNEY. The first thing, for the people, is improving the conditions within Central America, a whole-of-government approach, working with the countries down there to improve the conditions so that people want to remain within——

Chairman MCCAIN. That's a long-term project. What about the——

Admiral GORTNEY. Yes, sir.

Chairman MCCAIN. What about the short term?

Admiral GORTNEY. Sir, both of them demand long-term problems. This is a 30-year fight that we have to confront. When it comes to the drugs, it's working with our mission partners in those countries, as well as Mexico. It's improving the technology along——

Chairman MCCAIN. What about security on the border itself? Is it—we need more technology? We need more towers? We need more Border Patrol? What do we need?

Admiral GORTNEY. I would say that the—having been on the Mexican-Guatemalan border and then the Arizona and the Mexican border, the threat is a function of the—what we need is a combination of analyzing the threat, the terrain, the technology, and the training of the people. Efforts along all of those, both with our people and then working with Mexico and with Guatemala and Belize is exactly in order against all of those.

Chairman MCCAIN. Senator Reed.

Senator REED. Well, thank you very much, Mr. Chairman.

Let me begin with Admiral Haney. Admiral Haney, we are in the process of modernizing the triad, for very obvious and compelling reasons. With respect to the air aspects, there is proposals for a new penetrating bomber, but that bomber also needs ordnance to carry. Two items which you could comment upon are the replacement for our existing air-launched cruise missile and also the B61–12 gravity bomb. But, a related issue would be timing of—improvements on these delivery systems might, in fact, be—come along before the new penetrating bomber, but they would be very, very useful on whatever platform it's applying. I presume that, but you might confirm or refute.

Admiral HANEY. Ranking Member Reed, the air leg associated with our triad of platforms is very important, in terms of complex deterrents that any adversary that would want to escalate their way out of a failed conflict would have to also deal with. That's important in strategic stability. As you've indicated here, and I will articulate, it's very important that we move forward with the replacement bomber, in that our B–52 fleet, the planes flying today were off the assembly line in 1962. We'll still be flying that plane into the 2040s. Even our B–2 fleet is about 25 years old. It's important that we're able to have that capability—stealth platform to deliver both nuclear and conventional missions.

With regards to nuclear arsenals for that plane in order to have both flexible deterrents as well as visible deterrents, it's important that we replace the air-launch cruise missile. It was built in the '70s for a 10-year lifespan, well beyond that span today. That's why it's very important that we replace it with the long-range standoff cruise missile program that's just now getting underway in part of the President's budget for 2017. We already have a cruise missile, but it's well beyond its lifespan, and we need to replace it.

We also have programs associated with the B61–12 nuclear bomb that replaces four variants of, again, aging bombs. This helps us reduce our stockpile and have a more effective deterrent.

Senator REED. Just a follow-up question. As you develop this new air-launch cruise missile, it—I presume, and correct me if wrong, it could be launched from numerous platforms, even existing platforms. Is that correct?

Admiral HANEY. Absolutely. B–52, for example, which launches our air-launch cruise missile, doesn't have stealth characteristics. We'll use this new long-range standoff.

Senator REED. Thank you.

Admiral HANEY. You're welcome.

Senator REED. Admiral Gortney, you have many responsibilities in your—as you've indicated in your testimony and your response to the Chairman. One issue, though, is missile defense—national missile defense. Can you give us, sort of, an update on the long-range discrimination radar? How is it going? Also, generally, our posture when it comes to missile defense.

Admiral GORTNEY. We're on track with long-range discriminating radar and the necessary investments to keep our ballistic missile defense architecture to make it the very best we can and then to improve it. We want to thank the Members of Congress for those investments. We're in good shape there, sir. We're on path to have 44 interceptors in the ground by the end of 2017; 40 in the great State of Alaska and four in California.

Also, we thank you for the investments to help us get on the correct side of the cost curve, because right now we're on the wrong side of the cost curve, both in theater ballistic missile defense and intercontinental ballistic missile defense against rogue nations. Admiral Jim Syring, at MDA, and I asked for those investments and the research and development to help us get on the correct side of the cost curve. They're in the budget, and we thank you for that. Those that pay out, we'll be coming to you and asking you to put those into production once we understand what they do. I'm confident in the capability that we have today.

Senator REED. Just a follow-up question. This is always a subject of constant evaluation and reevaluation, but, at this juncture, your view would—on the need for an East Coast array of missiles, that need is not evident at this moment?

Admiral GORTNEY. I do not see it, sir. If the threat manifested itself from Iran today, I have the ability to engage it today. If I had one dollar to invest, I'd put it to where we could engage in those capabilities that get us on the correct side of the cost curve. Those capabilities will work both for theater ballistic missile defense for our servicemembers and their families overseas, as well as ballistic missile defense for here in the Homeland.

Senator REED. Thank you.

Admiral GORTNEY. Yes, sir.

Senator REED. My time is run out. But, Admiral Tidd, I want to commend your efforts and also the—your testimony today. One of the chief issues that I think emerges from your testimony is the need to build capacity in our allies in the region, that we can't, by far, do it alone. That is a multi-agency effort, not just SOUTHCOM, but SOUTHCOM plays a very critical role, because, for many in Latin America and South America, you used to represent not just Department of Defense, but the United States in your command. A quick comment, because my time is expired.

Admiral TIDD. Yes, sir. Thanks very much.

Where the Department is—of Defense—is able to play a useful is, we have a regional and a subregional look. The actual activities occur on a country-by-country basis, but we're able to look across the entire region and, I think, provide a very useful service to our interagency partners.

Senator REED. Thank you, sir.

Chairman MCCAIN. Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chair.

I—in this morning's Air Force Times, Admiral Haney, I noticed the—it caught my eye because Senator Rounds and I were just on Diego Garcia—that the Air Force is deploying three B–2s there. You're quoted in the article, announcing—making this announcement in this morning's Air Force Times. Any comments you want to make about that deployment of those three B–2s in Diego Garcia?

Admiral HANEY. Senator Inhofe, I would not describe it as a deployment. We take our global——

Senator INHOFE. That's how it was characterized in the article, though.

Admiral HANEY. Well, I didn't get interviewed by——

Senator INHOFE. All right.

Admiral HANEY.—Air Force Times, so I would say they probably mixed some of my earlier statements, et cetera.

We actually send out our bombers—B–52s, B–2s—number one, were we invited to participate in exercises with our allies and partners. We do that throughout the globe. We do Pacific operations, as well.

Senator INHOFE. Yeah. Well, that's good.

I want to—there's an area where I have sensed that there is a disagreement between our military intelligence, on one side, and the State Department, on the other side, having to do with the Open Skies Treaty. Russia has reportedly announced its intent to submit plans for aerial surveillance flights, which I understand are permitted under the Open Skies Treaty, over the United States using advanced digital cameras. Several in the—I think Clapper made some comments, and certainly Lieutenant General Vincent Stewart, Director of Defense Intelligence Agency, with—concerned about this because of the advanced technology that's out there. To quote him, he says, "The things that you can see, the amount of data you can collect, the things you can do with post-processing allows Russia, in my opinion, to get incredible foundational intelligence on critical infrastructure, bases, ports, all of our facilities." He was critical of this. What is your thinking about this? Where do you fall down on this?

Admiral HANEY. Senator Inhofe, I think, as with all things, we have to take a balanced approach, but we have to look at this very carefully. Clearly, we, back here recently, did an Open Skies Treaty mission over Russia with one of the 32 other signors of the treaty. It's a mechanism by which we are able to have transparent mechanisms with our allies and other partners in that group, while at the same time we have to be careful as we look through the technology advances using digital media versus film. Sustaining film is problematic today. This is—got to be in balance. Clearly, I'm concerned of any Russian ability to gain intelligence on our critical infrastructure.

Senator INHOFE. Now, when we were going over Russia, were we using the advanced digital equipment?

Admiral HANEY. We were not, because we haven't gotten that far yet.

Senator INHOFE. They're ahead of us, then. All right.

The—when Senator Reed was talking about the—all three legs, you were concentrating on the air legs of the triad. The—Admiral

Winnifeld recently made the statement—and I'll quote him—he said, "Any remaining margin we have for investing in our nuclear deterrent has been steadily whittled away as we've pushed investments further and further into the future." Do you think, Admiral Haney, that Russia is actively modernizing their nuclear weapons delivery system and we're just—are they ahead of us?

Admiral HANEY. Well, I would——

Senator INHOFE. If so, is this a concern?

Admiral HANEY. Well, Russia's modernization program in their nuclear deterrent forces is of concern. Period. Dot. End. The piece when you look at what they've been modernizing, it didn't just start. They've been doing this, quite frankly, for some time, with a lot of crescendo of activity over the last decade and a half.

Senator INHOFE. Yes, we've been talking about it for a long period of time, that we have not been keeping up in our program, as many people think we should. A lot of us, when we're back in the—our own States, we hear things that are going on, and some things really catch the attention of the American people. I brought up these two issues, because these are two that do make a difference and the people are aware of, and there are concerns out there.

Thank you.

Chairman MCCAIN. Senator Nelson.

Senator NELSON. Thank you, Mr. Chairman.

Admiral Tidd, welcome to Florida. Welcome to Miami.

Admiral TIDD. Sir, it's a delightful place to live.

Senator NELSON. In your three Cs and three Gs, you talked about this efficient network that moves things from south to north, not only drugs, human trafficking, all kinds of contraband. Do you have enough resources to do that in the President's Budget?

Admiral TIDD. Sir, the simple fact of the matter is, we do not. I do not have the ships, I do not have the aircraft to be able to execute the detection and monitoring mission to the level that has been established for us to achieve.

Senator NELSON. This is a unique role, where the Navy in the Caribbean and the Pacific coordinates with the law enforcement arm of the Coast Guard. They need assistance, too, don't they?

Admiral TIDD. Sir, I would agree completely. It is very much a team sport. The activities that are orchestrated by our Joint Interagency Task Force South in Key West Florida involve the efforts of all of the State—excuse me—all of the Federal law enforcement agencies as well as the Department of Defense. Coast Guard plays a very significant role.

Senator NELSON. We have seen some lessening of the violence and the drug lords in Honduras. That used to be the number-one murder capital in the world. Just this past weekend, I met, on several occasions, with the President of Costa Rica. They seem to be fairly stabilized. But, we're getting more drugs coming into stable places in the past, such as Panama. That being the Panama Canal, an expanded canal, what do you think is the threat there?

Admiral TIDD. Senator, the adversary that we are dealing with is very flexible, very agile, and it's like squeezing a balloon; when we squeeze in one place, if we are not able to apply pressure across the entire breadth of the network, they will adapt and move to the area that they think they can get in. As we have been—had some

success working with our Honduran partners, as they have been able to get out and apply greater pressure in areas that previously had been denied to them, we're seeing the—that the drug traffickers are moving the landing points for the—where the drugs are coming ashore in Central America to different countries.

Senator NELSON. Couldn't we get a lot more support from Mexico, where all these drugs, basically, other than the ones that are going the water route to Puerto Rico, some to Haiti—couldn't we get a lot more support from Mexico, since they come there and then they go across the border?

Admiral TIDD. Senator, I would defer that specific question to——

Senator NELSON. I know——

Admiral TIDD.—to Admiral Gortney.

Senator NELSON.—it's not in your AOR, but what do you think?

Admiral TIDD. What I think is that we continue to work very closely with the militaries of all of the countries of Central America. I know that NORTHCOM works closely with the Mexican military to improve their capability and capacity to get this problem. Our ability to share information effectively plays a significant role.

Senator NELSON. Well, at least we got El Chapo. That was a step in the right direction.

Tell me about Haiti. They've got this interim government. Is it working until they can finally declare a President?

Admiral TIDD. Sir, I think the situation in Haiti—every morning that we wake up, we watch—and to make sure that they have not had significant crises that have occurred there. They're going to have their hands full for a long time to come.

The role played by the U.N. peacekeeping operation, MINUSTAH [United Nations Stabilization Mission in Haiti], there has been absolutely critical in sustaining that—the stability that is there. We've got some key partners in the nation, most notably Brazil that has been a real backbone of that MINUSTAH operation. We would hope that countries like that would continue to make those contributions.

Senator NELSON. Basically, bottom line, until they improve in their economic depravity, it's going to be a nation whose government is always subject to a lot of corruption.

Admiral Gortney, what do you think about Mexico in helping us out?

Admiral GORTNEY. I think they're in a 30-year fight, going after immense challenges. The number-one problem is corruption. If you look at the root cause that you've got to solve first—and this is Admiral Soberon's words, not mine—is to go after the corruption within the country. We need to assist them across our whole-of-government approach in this 30-year fight. They're great mission partners. SEDENA and SEMAR are great mission partners, but they have an immense challenge. We do everything we can to assist them with that.

Senator NELSON. Isn't it interesting that you can rely on that elite unit at the federal level, but you get anywhere below that, it's just—you can't even say anything about intel; otherwise, it gets to the drug lords.

Admiral GORTNEY. Yes, sir. You mentioned the—recapture of El Chapo. Those Mexican marines were trained by United States marines.

Senator NELSON. Well, that's very good.

With that, I'll say, Mr. Chairman, the marines are standing tall.

Chairman MCCAIN. Senator Fischer.

Senator FISCHER. Thank you, Mr. Chairman.

Admiral Gortney, our adversaries are continuing to invest in developing advanced long-range cruise missiles. That can hold the United States at risk. I think we have really thin defenses against those. Can you talk a little bit about the JLENS program and what role this plays in defending the United States against a cruise missile attack?

Admiral GORTNEY. Yes, ma'am. The three types of missiles we worry about, the third one is the cruise missile attack. The Russians have—are employing these cruise missiles in Syria today, both from bombers, ships, and submarines. When there's no operational or tactical requirement in the battlefield to do it, they're messaging us that they have this capability, and those missiles can—have made it either a conventional or a nuclear-tipped warhead.

In order to defeat this threat—I've been defending against them since I was a lieutenant JG, and I've shot over 1300 of them. If you want to defeat this threat, you have to be able to detect it. In order to do that, you need an array—a radar that is above the horizon. That can come in many forms. It can be the AWACs, it can be the E–2 Hawkeye for the Navy, or it can be JLENS [Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System]. What it does for us here in the national capital region as we're executing our test, is putting this array up. It fills a gap—at the classified level I can't say in this forum—it fills a cap—a capability gap that I do not have today. We look forward to restarting the JLENS program after the very unfortunate mishap that we have. We understand what happened. We've put in place the mitigation efforts. We look forward to completing it, because, should it bear out, it fills a gap that I do not have today against this particular threat.

Senator FISCHER. Thank you, sir.

Admiral Haney, last week General Rand, who commands Global Strike Command, he testified that the Huey helicopters providing security for our ICBM fields, they cannot meet the emergency response requirements. Can you talk about the current capability gap that we have and the need that we see to replace those helicopters?

Admiral HANEY. Senator Fischer, the—General Rand's comments were spot on the mark there. These current helicopters, these UH–1Ns, don't have the lift capability, the speed capability to meet the requirements that have been improved—validated through a number of studies, as well as Might Guardian exercises, and what have you. They don't have the lift to get the amount of security forces to the scene. When you look at these missile fields, they're vast, and they cover large areas, as you well know. They—in order to meet those kinds of requirements, we need a new helicopter.

Senator FISCHER. Would you say that need is urgent?

Admiral HANEY. I would definitely say the need is urgent.

Senator FISCHER. Thank you, Admiral.

Thank you, Mr. Chairman. I have to run, to preside.

Chairman MCCAIN. Senator Manchin.

Senator MANCHIN. Thank you, Mr. Chairman.

Thank you all for your service and for being here today.

I think, Admiral Tidd, if I could, you know, you were talking about the drugs, and this and that. If you were going to rate—and I've just heard a couple of statistics—but how the drugs are getting here, most predominantly—by air, sea, over ground, or through tunnels?

Admiral TIDD. I would defer to Admiral Gortney to——

Senator MANCHIN. Okay.

Admiral TIDD.—talk how they actually get across the U.S. border into the United States. But, as they go through the SOUTHCOM region, they go by air and by sea.

Senator MANCHIN. Okay.

Admiral TIDD. Then over land of Central America.

Senator MANCHIN. How do they get into the United States border? Across it——

Admiral GORTNEY. Through all mechanisms, sir. Everything that we talked about, that Admiral Tidd talked about, through the tunnels——

Senator MANCHIN. I've heard that—and, sir—and, Admiral, that's the—I had not heard that tunnels were so prevalent. I heard that tunnels are probably one of the most pervasive ways that this stuff is getting in, and we're not doing a whole lot about the tunnels.

Admiral GORTNEY. Well, sir, I've been in one of the tunnels.

Senator MANCHIN. Okay.

Admiral GORTNEY. I've looked at the tunnel detection capability that Custom and Border Patrol use, the technology that they have applied to that, and then crawled through the tunnels with them. It's a—once again, it's a very adaptive enemy that goes out there. If they can find a mechanism in order to——

Senator MANCHIN. Are we destroying the tunnels?

Admiral GORTNEY. Yes, sir, we are, those that we find. As they detect them, they then work the law enforcement piece on each side to find out where the entry and exit piece is, what is the network that is controlling that entry and exit piece after that, and working both sides of the borders on it. Then, once the—once they understand that, they'll go ahead and destroy and fill in the tunnel.

Senator MANCHIN. Do you think a wall is needed?

Admiral GORTNEY. Sir, we—a wall will not solve the immense problems that go out there. You need all of the technology.

Senator MANCHIN. I know. Would it help? I'm just saying—because people believe—of course, there's a lot of rhetoric about a wall——

Admiral GORTNEY. Yeah.

Senator MANCHIN.—these days in the news, but I'm—sincerely, do you believe that it could help, or would help, more——

Admiral GORTNEY. Well——

Senator MANCHIN.—than not having a wall?

Admiral GORTNEY. The—I have flown the border between what we call our middle border, on the Arizona side, and I've seen the technology that is applied there, be it sensors, be it fencing. Every

type of fencing that happens to be out there, because the terrain demands different types of fencing——

Senator MANCHIN. Sure.

Admiral GORTNEY.—for it, and we need to put in place all of that technology across our border as we try and work with our mission partners south of the border, as well as cut back significantly the demand signal here in our country.

Senator MANCHIN. If I could follow up with you again, Admiral, as—yesterday, Lieutenant General Thomas submitted in written testimony that ISIS-inspired lone actors pose the most direct and immediate threat to United States Homeland. As we saw in San Bernardino and Dallas. There are many folks in my State of West Virginia that have a lot of concerns with our Government when our Government considers accepting refugees from overseas. They're more concerned about, Are we doing the proper vetting process? I would ask, Should we accept Syrian refugees into this country at this time? Are we able to do the proper vetting, since we have such little facts about those people coming?

Admiral GORTNEY. Homeland Security has a very robust vetting process for everybody that comes into this country, particularly focused on the Syrian refugee challenge that's coming this way. I have confidence in the program, but no program is perfect, sir. When I look at people that are trying to come to do nefarious activity in our country, the ones that I am not—I am most concerned are those that enter the country legally, under a legal means, because then they have freedom of maneuver to operate within the United States. Those that try and enter illegally have hooks that we may have opportunities to pick up. Then, if they're maneuvering inside, they have—do not have the freedom of maneuver inside the country. It is the vetting process, a very robust vetting process that Homeland Security has, that is absolutely critical——

Senator MANCHIN. But, you all recommend that we do not reduce that vetting process whatsoever.

Admiral GORTNEY. No, I would not——

Senator MANCHIN. Thank you.

Admiral GORTNEY.—at all.

Senator MANCHIN. Admiral Haney, if I could ask you. In recent days, we have once again seen North Korea threaten to conduct a preemptive nuclear strike and reduce Seoul into a sea of fire and ashes. Now, I know we always hear that rhetoric anytime we partner with South Korea, as we're doing right now, to conduct military exercises, but it seems to be a lot stronger this time. It seems to be growing stronger every year. Do you feel there is a linkage to North Korea's ratcheted rhetoric and their more aggressive missile test?

Admiral HANEY. Well, I won't, Senator, try to rationale——

Senator MANCHIN. Right.

Admiral HANEY.—North Korean behavior and Kim Jung Un's behavior. I will state that the nuclear test, the fourth test they just did here, and the space launch that they just did, further enhanced their understanding and knowledge associated with this. North Korea has made many claims—miniaturization of nuclear warheads. They've paraded around their KNO–8 intercontinental bal-

listic missile. I think we have to take these problems seriously, because it's clear to me they are working hard to——

Senator MANCHIN. Is it more aggressive than you've seen in the past?

Admiral HANEY. Absolutely.

Senator MANCHIN. So—thank you.

Thank all of you.

Chairman MCCAIN. Admiral, if I could just follow up. Your greater concern is people who come into this country legally, as opposed to coming across our border. Is that a correct——

Admiral GORTNEY. Yes, sir, because it's their ability of freedom of maneuver to operate within our country. Anytime that someone is—comes through illegally, we have the—a better opportunity to detect them and pick them up. As they're in the country, just as the San Bernardino attack showed out, the woman involved entered the country legally. We did not have the sensors, the ability to detect what she wanted to do. You've got to tackle both of them as we go forward.

If you look at the Paris attacks, they entered the EU legally. They operated—they had freedom of maneuver to operate within the EU on the continent, because of the policies that they have in the EU—operated and planned the attack in a country that did not have the authorities that Paris did, and then freely move into France to conduct the attack. Disabling their—this freedom of maneuver is—I think is absolutely critical, which goes back to the vetting policy that was asked before, sir.

Chairman MCCAIN. Senator Cotton.

Senator COTTON. Thank you.

Admiral Tidd, I want to talk about the potential for migrant flows into the United States from Latin America, as we saw during the migrant crisis in the summer of 2014. Obviously, there are push factors involved, given the crime and the violence in, say, Central America. But, there are always pull factors involved, as well. This is one reason why President Obama stated, in 2014, that parents in Central America shouldn't send their children to the United States through coyotes or human traffickers. Similarly, you see, in Europe, after Chancellor Merkel said that Germany would take all migrants and refugees, there was a significant increase in the flows, not just from places like Syria and Iraq, but from many other countries in Africa and Asia.

Therefore, I'm very troubled by what I heard last night in the Democratic debate. It's easy to write off political debates as theater, but we're the world's superpower. There's only six people right now who are likely to be our next President of the United States, our next Commander in Chief. Last night, the two candidates in the Democratic side said, essentially, that they would never send any children back to their country of origin if they make it to the United States. What kind of message did that send to families in Central America and South America about the risk they're willing to undertake to send their children to the United States through human traffickers and through coyotes?

Admiral TIDD. Senator, I think one of the most effective things that the Department of Homeland Security was able to do to begin to curtail that movement of children coming into the country back

in 2014 was to try to change the messages that were being communicated via social media back to family members, that, "It's safe, it's easy to come in. You won't be incarcerated." They put a hard push to communicate that, if you come across the border, you will be held until you can be processed for return back home. I think all of the steps that can be taken to deal with those pull factors would be critical.

Senator COTTON. I agree. I mean, I don't think it's an especially moral policy what Chancellor Merkel has proposed in Europe or what we heard last night. We're essentially saying, to people who are poor and oftentimes in countries racked by violence, that if you can survive, you can stay here.

Admiral TIDD. The critical work that you identified to try to change the push factors out of those countries, the long-term sustained work that's being done by Department of State, by USAID [United States Agency for International Development] to try to provide economic opportunities so that those—the people will find that it is economically a much better decision to remain home, and then the work that's being done to try to improve security within those countries so that it is not a—it's a life-or-death decision to remain home—that's the key to the long-term——

Senator COTTON. I agree, on the long-term solution, the work that you and all the men and women of SOUTHCOM do and have done for many years are critical to build that kind of capacity in the countries that send the most migrants here. But, I also think that statements by American leaders, that essentially create a full employment opportunity for human traffickers are very damaging, not just for our country, but for the young children that might be sent here.

I'd like to stay in your AO [area of operation] and turn to Guantanamo Bay. I led a delegation of the freshmen on this committee and the Intelligence Committee last year to see Guantanamo Bay. We were very impressed by the operations. We were even more impressed by the men and women you have serving there. Could you explain to us a little bit about the stressful and sometimes dangerous working conditions they face handling these depraved terrorists?

Admiral TIDD. Senator, thanks for the opportunity. We—I've—in the short two months that I've been in the—this position, I've visited Guantanamo Bay twice to see for myself, to be able to assess exactly the high degree of professionalism and discipline that the men and women execute that mission. As you observed, it is very difficult, very challenging, oftentimes under enormous pressure from both the expectations from outside, but then also just the actions of the detainees there. There have been a—in the last 12 months, 100 assaults committed by the detainees on our guard force, assaults in the form of splashing, scratching, pushing, shoving, those sorts of activities, and then threats of worse if they had the ability to do that. The fact that our men and women never respond in a negative way, that they continue to remain very professional, I think is testimony to the fact that they are supremely well trained, they are exceptionally well qualified for the mission that we ask them to do. All of the American people can be very proud

of the job that they've done—that they have done and continue to do.

Senator COTTON. Thank you.

My time is expired.

Chairman MCCAIN. Senator Blumenthal.

Senator BLUMENTHAL. Thanks, Mr. Chairman.

Admiral Haney, you note in your testimony, and I'm quoting, "Recapitalizing our sea-based strategic deterrent" remains your top priority, end quote. Considering the gap that we're facing in submarine capabilities, do you think that we ought to consider building three submarines a year—two *Virginia*-class and one *Ohio* replacement?

Admiral HANEY. Oh, Senator Blumenthal, I am supportive, and as you correctly stated——

Senator BLUMENTHAL. I am, too. I am, too, and I appreciate your support.

Admiral HANEY.—the building and the capability that we need to have, in terms of the *Ohio* replacement, SSBN, is a top priority. As I mentioned also, having conventional capability across our joint military forces is also important. We've got to get that balance right. I'm not—to give you an acquisition strategy on the number per year and what have you, there, I will say we need to have a—I depend upon the strong submarine force and all their capabilities, but, in particular, to have that strategic survivable capability underwater is very important to our Nation as a whole.

Senator BLUMENTHAL. I didn't ask you to commit to doing it, but to consider doing it, which I think is really important. Privately, I think that the Navy has been receptive to this idea of two *Virginia*-class submarines a year, plus the ORP [Office of Research Protections] at least for some period of time. In order——

Admiral HANEY. Well, I can I'd like to see five per year, but, you know, we have to do things in reason. From the spirit of what we need as a country as a whole, we've got to get that balance right. We do know, as I'm thinking you're implying, correctly so, that our submarine force does bring significant value to our Nation.

Senator BLUMENTHAL. Admiral Tidd, some of the reports that we've had indicate that we can actually see illicit substances—opioids, heroin—transported across waters, even across borders, but we lack the equipment and manpower to intercept and interdict and stop them. Is that true?

Admiral TIDD. Senator, it is. First, what I'd like to do is thank the exceptional efforts of the Congress to provide additional resources as they became available for us to be able to increase the resources that we do have. The—we've been able to apply those resources very quickly in some new ways and to be able to take advantage of some nontraditional capabilities to increase our ability to see the movement and things that are going on.

It still only gives us glimpses. We're not able to maintain a persistent view of activities going on within the theater. As you rightly point out, our ability to interdict is extremely limited. The number of surface ships largely provided by the U.S. Coast Guard, but the U.S. Navy also provides some limited capability, as well, but even that, it's not enough for us to be able to deal with the—what we're able to see.

We try to mitigate that by increasing the capability of our partner nations, and they've—and the development that we've been able to do in their intercept capability and interdiction capability has made a significant improvement. As it stands right now, about half of the interdictions that occur, occur with the help of partner nations.

Senator BLUMENTHAL. Well, my time is limited, but let me just emphasize how important I think the American people believe it is to interdict and intercept the flow of these illicit substances. Clearly, the demand side needs to be addressed. In fact, we are seeking to do so through the Comprehensive Addiction and Recovery Act, which is only a step in the right direction, because it lacks the resources to provide the kind of treatment and services and even law enforcement support that we need to do. The demand side is important, but equally so, the work that you're doing is absolutely critical. I recognize that the dedicated men and women under your command are working as hard and long as they can with the limited resources they have.

I'm hopeful that we can get from you a more specific list of resources, whether it's equipment, ships, aircraft, that you think are necessary. I'm not asking you to provide it now, but I would, for the record, ask that you provide it to the committee.

Thank you, sir.

Admiral TIDD. Sure.

Senator BLUMENTHAL. Thank you very much, Mr. Chairman.

Thank you all for your dedicated service to our Nation.

Chairman MCCAIN. Senator Ayotte.

Senator AYOTTE. Thank you, Chairman.

I want to thank all of you for your service and leadership for our country.

Admiral Gortney, in the 2016 NDAA [National Defense Authorization Act], I was able to include a very—a bipartisan effort that was focused in asking the Secretary of Defense to carry out research, development, testing, and evaluation activities with Israel on anti-tunnel capabilities to detect, map, and neutralize Hamas and Hezbollah terrorist tunnels that, of course, are used for those tunnels to come up and commit attacks in Israel. But, we also know that this is a very important issue, not only in protection of our friend and ally, Israel, but also on our southern border, because we know that tunnels on our southern border can be used to smuggle drugs, like heroin and Fentanyl, which are devastating my State, into the United States, and they also presumably could be used by other bad actors, including terrorists.

Admiral Gortney, has there been collaboration with Israel on terror tunnels that has benefited NORTHCOM's and the Joint Task Force North's efforts to develop technology to detect, map, and neutralize drug-smuggling tunnels on our southern border?

Admiral GORTNEY. Absolutely, ma'am. It's very, very helpful for us. You know, we don't have a monopoly on good ideas in our country. When we can partner with our partners overseas that have a similar challenge, it's very, very—it's been very, very beneficial, both for us and for our partners in the Custom and Border Patrol.

Senator AYOTTE. Excellent. I'm glad to hear it. I look forward to continuing to focus on those efforts.

How much of this is an issue as we look at—in New Hampshire, we had a record number of drug overdose deaths this year from heroin and Fentanyl—420. It's been devastating. In fact, right now, on the Senate floor, we have the Comprehensive Addiction Recovery Act, which is focused, obviously, on the prevention, the treatment, and support for our first responders so that they can help bring people back from drug overdoses. But, thinking about the interdiction piece, what's happening over our southern border on this issue? This is something I've raised also with Secretary Johnson. Can you give us an update on your interdiction efforts?

Admiral GORTNEY. Yes, ma'am. Our interdiction efforts, we work both sides of our middle border. North of our border, we do the Department of Defense support with our mission partners through JTF North. You know, just last year, it was a $10.7 million program that we were given for JTF North, and they assisted in pulling—taking $436 million of drugs off the street with our mission partners. We use the services in order to do that. In a 30-day period, over one stretch of territory that Custom and Border Patrol was asking us to take a look at, they were able to interdict 1 pound of marijuana and only one trafficker. We put United States Marine Corps ground sensor platoon who were in their training in order to deploy, and, in that same 30—in another 30-day period over that same terrain, they were able to pull up 1200 pounds of marijuana and 75 traffickers. Being able to assist with them is absolutely critical for that.

Senator AYOTTE. What are you seeing on heroin and Fentanyl?

Admiral GORTNEY. Heroin and Fentanyl are coming through our normal passages, the legal entry control points across our border. Heroin, predominantly through the San Diego passage. Very, very small shipments, which is very, very difficult for our partners to be able to detect with the technology that they have today.

Senator AYOTTE. What more could we do to assist you to give you some more technological tools or personnel to try to address this? Because what's happening in New Hampshire and across the country is, the price of heroin and Fentanyl, of course, have gone down dramatically, and you've got people——

Admiral GORTNEY. Ten dollars a pop in any——

Senator AYOTTE. Yeah. They're going from prescription drugs, unfortunately, to heroin, and people are dying.

Admiral GORTNEY. That's correct. Everywhere, ma'am. We've got to—we have to tackle this from both sides of the problem. Where our mission partners—what do our mission partners need in the capabilities to detect, improvements with all of our whole-of-government approach with Mexico and Central and South America. I'm responsible for the Mexican piece, of the mil-to-mil piece. Then we have to work on the demand signal. Sir, I want to—Senator Donnelly, with your anti-opiate bill that goes to the floor today, absolutely critical. You know, we look at this, the three of us look at this through not only military officers that are tasked to defend the Nation and what we can do in order to do that, but we look at it as fathers and grandfathers, as well. We have to go after the demand signal while we work the interdiction piece.

Senator AYOTTE. Let me just thank Senator Donnelly, because this is something that he's been a great leader on that we've

worked together, and appreciate his efforts on this and focus on it, and others on this panel who have been working on it.

I also wanted to ask, Admiral Gortney, in your prepared statement, you said that you assess that Iran may be able to deploy an operational ICBM by 2020 if the regime chooses to. Well, we know, in the last several days—first of all, we had a ballistic missile test in October, one in November, and, in the last 2 days, we've had several ballistic missile tests from Iran. Can you give us the detail on that assessment? Obviously, they're testing this capacity—where they stand on this development.

Admiral GORTNEY. Yeah. None of their tests violate any of the agreements that are out there, but I think it's indicative of where their minds are. I don't see a change in their behavior. If they had the capability today, I have the ability to engage it today. We watch very closely. We thank the committee and all of Congress for the investments that allow us to be able to outpace that particular threat.

Reading their intentions, I don't see a change from the Iranians' behavior.

Senator AYOTTE. In other words, bad behavior.

Admiral GORTNEY. Yes, ma'am.

Senator AYOTTE. Thank you.

Chairman MCCAIN. Senator Donnelly.

Senator DONNELLY. Thank you, Mr. Chairman.

I would like to thank Senator Ayotte. She's been a great partner in this effort to try to stop the flow of heroin. I know what a challenge it's been in New Hampshire and in my State. We've both worked in a real bipartisan way to try to get this done. She's been a great partner.

The Chairman mentioned, at the beginning, about the fact that this is an epidemic. I just want to tell you, a little town in my State, Connorsville, Indiana, and it's, you know, a little southeast of Indy. We've lost young person after young person after young person, older people, too, to heroin deaths. Six dollars per is what it's taking, in terms of each time they use heroin, it's 6 bucks. The extraordinary talent we're losing, the extraordinary family damage it causes, it takes your breath away, as all of you know. In some of the saddest cases, they are vets. They're our family in the military who this has happened to. We know we have a demand problem. We're trying to get our hands around that and get it fixed. But, as you look at this, how much is getting through that—you know, that—whether it's the heroin or the Fentanyl or whatever—that you look, and you go—of the percentage coming through, how much are we stopping?

Admiral GORTNEY. I don't have the percentages in front of me, and——

Senator DONNELLY. I'm not looking for an exact number.

Admiral GORTNEY. Yeah. I'm hesitant of using the percentage of our confiscation as a metric of success, because of the increase—you know, if you're measuring from 2 years ago or——

Senator DONNELLY. Right.

Admiral GORTNEY.—or that, it's—I just don't think it's a very good metric that we can either hang on our hat on—that we would not want to hang our hat on. We have to do more. We have to do

more throughout Central—Mexico and Central and South America with those mission partners, our whole-of-government approach with that, with the eradication effort, which, you know, currently 570 hectometers—hecta-acres, the Mexican—SEDENA, the navy, has eradicated of—just in poppies last year. But, it's still not enough. Once again, as Admiral Tidd talked about, the balloon—when we think about the balloon, the pressure to stop the interdiction, we also have to work the demand piece on top of it.

Senator DONNELLY. Do we have intelligence services who are working this to try to find out—you know, as we talked, Admiral, about it's this group and that group and that group—do we have intelligence agencies that are working to try to find out when this is going out, where it's going out, to try to help with that effort?

Admiral GORTNEY. Absolutely, sir. We're working and passing that information with our mission partners, as well as developing their capability to determine that on their own.

Senator DONNELLY. Well, if you could both put together, in effect, almost—I don't know if this is the right term—a wish list saying, "Look, if we had this, we could stop this much more. If we had this, we could prevent this portion." If you could provide that to us, I'd be very, very grateful.

Admiral GORTNEY. We'll take that for a task, sir.

Senator DONNELLY. Thank you.

Senator DONNELLY. Admiral Haney, when you look at hypersonics, there's a wealth of open-source reporting on efforts by Russia, and particularly China, to develop hypersonic weapons that could pose a serious challenge to our missile defenses. Within DOD, our most advanced hypersonic effort is CPGS [conventional prompt global strike], and I was wondering what your thoughts are on the value of CPGS to STRATCOM and the Nation.

Admiral HANEY. I feel that the Conventional Prompt Global Strike is a very important——

Senator DONNELLY. I apologize, I use——

Admiral HANEY.—program——

Senator DONNELLY.—I use military-speak.

Admiral HANEY.—is also a very important approach that we have to continue to pursue, one, to understand that technology, but, as you've stated, since other nations are also pursuing it, our ability to counter it is also very important.

Senator DONNELLY. Admiral Gortney, I want to get your perspective on our missile defense priorities this year. You know I work with Senator Sessions and a number of our wonderful colleagues here in regards to this area. We have a strong commitment to the success of our GMD [Ground Based Midcourse Defense] system. I was wondering if you could let me know if our current GMD architecture with interceptors in Alaska and California provide cover for the entire continental United States, including the East Coast, against the threats.

Admiral GORTNEY. Yes, sir, I am able to deal with rogue nations from any direction at this particular time with what we have. We appreciate the investments in making that which we've got, as best as we got, the improvement in sensor and, again, like we talked, the necessary R&D investments to get us on the correct side of the cost curve and continue to outpace the threat.

Senator DONNELLY. Well, I want to thank all of you for your service. As I mentioned, we have a lot of threats overseas, but every week, there are stories about young men and women who are dying from heroin, from opioids. Our EMTs are overwhelmed and using Narcan to try to bring people back in anti-overdose situations. We not only want to protect our country from our enemies overseas, but to keep our people safe. You're right on the front line. We appreciate your hard work on this. Don't ever think, for a minute, that we don't realize what a challenge it is and that you don't have our full support.

Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Sullivan.

Senator SULLIVAN. Thank you, Mr. Chairman.

I wanted to thank you, gentlemen, for your service.

I also want to follow up on the line of questioning that Senator Donnelly was just talking about, in terms of missile defense. He and Senator Sessions—actually, everybody on this committee has been a real strong supporter of that. Having both the two COCOM [combatant command] commanders in front of us who are tasked with that, I'd like to dig into some details.

Admiral Haney and Admiral Gortney, can North Korea range any part of the United States right now, in terms of their missile capability? That's either the mainland or Alaska or Hawaii or any American territories in the Pacific.

Admiral GORTNEY. Sir, as the Commander accountable of holding the trigger to defend the Nation against that particular threat, I assess that they have the ability to put an ICBM in space and range the continental United States and Canada. The——

Senator SULLIVAN. Clearly, then, Hawaii and Alaska are in range.

Admiral GORTNEY. Absolutely. Yes, sir.

Senator SULLIVAN. Would—do we anticipate that will have a—you say ICBM, but nuclear capability ICBM now——

Admiral GORTNEY. Yes, sir.

Senator SULLIVAN.—or soon?

Admiral GORTNEY. I assess, as the commander there, that it's the prudent decision on my part to assume that he has the capability to nuclearize—miniaturize and nuclearize—miniaturize a nuclear weapon and put it on an ICBM. I have the ability——

Senator SULLIVAN. Today.

Admiral GORTNEY. Today.

Senator SULLIVAN. Range the continental United States.

Admiral GORTNEY. Range all of the States of the United States and Canada. We have the ability to engage that threat. Intel community gives it a very low probability of success, but I don't—do not believe the American people want to base my readiness assessment on a low probability.

Senator SULLIVAN. I think you're very correct on that.

How about Iran? Same question.

Admiral GORTNEY. Iran, we do not assess they have the ability to do it today. Should they have the ability to do it today, I have the ability to engage it today.

Senator SULLIVAN. When do you think they'll have the ability?

Admiral GORTNEY. It's a decision on their part, sir, and it's a decision if they want to nuclearize, whether they want to develop—complete the development of an ICBM and then the reentry vehicle. We track very carefully all three of those pieces.

Senator SULLIVAN. Do you think they're cooperating with North Korea on some of this right now to——

Admiral GORTNEY. Absolutely. Absolutely.

Senator SULLIVAN. You anticipate that that threat will continue to grow and probably they'll be able to reach Hawaii, Alaska, the East Coast, continental U.S. within——

Admiral GORTNEY. The——

Senator SULLIVAN.—five years?

Admiral GORTNEY. Well——

Senator SULLIVAN. If they continue on their current path.

Admiral GORTNEY. We look at it in a one, two, and three, a decision to nuclearize, a decision to put it on a warhead, and a decision to be able to actually put the reentry vehicle all together. When they make that decision, it's a one-two-three decision on their part. We track—and we look very closely—we have the intel community looking very closely at each one of those pieces.

Senator SULLIVAN. I've been supportive of the Department of Defense, Obama administration's missile defense budget. You probably saw, this committee's been very supportive of that. I've lately heard concerns that maybe in this year's budget there's not enough. Can you—either of—Admiral Haney or Admiral Gortney, can you talk about what you think, in terms of—given these threats, which are quite significant, the role of Fort Greeley, the role of our GBIs [Ground Based Interceptors]. Do we think we have enough right now? Importantly, do we have enough—particularly on the radar and ground-base interceptor element right now, but do we have enough to deal with the threat that certainly seems to be increasing? Does 41 do it, or should we anticipate having more? Because it doesn't look like the Iranians or North Koreans are going to be standing down their missile capability anytime soon.

Admiral GORTNEY. It'll be 44 interceptors by the end of 2017.

Senator SULLIVAN. Fourty-four.

Admiral GORTNEY. Fourty-four in Fort Greeley in the great State of Alaska, and the necessary sensors are going all in place of Alaska because of the strategic importance of Alaska. It's not going to be enough, because it's not going to be able to outpace the threat in the number of rate counts, the number that can be shot at us as——

Senator SULLIVAN. Right.

Admiral GORTNEY.—we project into the future, which is why the investments that you all have supported in our research and development are so important, to get us on the correct side of the cost curve. Because, on our current path, using the current technologies and a one interceptor versus one warhead in midcourse is a failing proposition——

Senator SULLIVAN. Yeah.

Admiral GORTNEY.—because they can produce more than we can ever possibly afford to put in the ground.

Senator SULLIVAN. Do we—do you anticipate, in 5 to 10 years, as the threat grows, as the rogue-nation missile capability increases,

as the number of missiles they have increases, as their ability to nuclearize payloads—miniaturize the nuclear payloads increases, are we going to need more ground-base interceptors to keep up with that threat?

Admiral GORTNEY. We're going to need more capability to engage the threat throughout its flight, keep them on the ground, kill them on the rails, kill them in boost phase, and then get more warheads in space in midcourse. We have to be able to engage it right now throughout the flight of the profile, not just in midcourse with a—one rocket against a very—one very expensive rocket against another rocket.

Senator SULLIVAN. In your professional military opinion, do we have enough—is the current budget on these issues, given the threat, which you've just laid out is quite significant, including North Korea being able to hit the continental United States—does the current budget, in your professional military opinion, have enough resources dedicated to missile defense to keep us safe now and, importantly, to keep up with this growing threat?

Admiral GORTNEY. Working very closely with Admiral Syring, who's in charge of developing this at the Missile Defense Agency. Last year's budget, we think, was adequate for us to improve what we have and invest in those technologies and see if those technologies will bear out to get us on the correct side of other cost curve and engage throughout the flight of these missiles.

Senator SULLIVAN. This year's budget?

Admiral GORTNEY. This year's budget, yes, sir.

But, should—should those technologies come forward, the budget's not enough to put those capabilities into production and to deliver those capabilities. Once we prove, say, the laser technology that can hit their—multi-object kill vehicle technology that's out there—should those technologies bear out—and they are very, very promising—then we're going to be needing an increase in the budget to put those capabilities in place.

Senator SULLIVAN. Thank you.

Thank you, Mr. Chairman.

Senator REED [presiding]. On behalf of Chairman McCain, Senator King.

Senator KING. Thank you, Senator Reed.

We've been talking a lot—I think the fact that you've—practically every Senator has asked questions about drugs is an indication of how serious this problem is in all of our States. We've talked about the border. We've talked about maritime asset ships, intelligence. But, these drugs—you mentioned Colombia, Mexico—are grown in great big fields. What effort is being made with these other countries to put a stop to that? I mean, if somebody in Iowa was growing 100 acres of poppies and turning it into heroin, I think we'd do something about it. Is there any effort made, in terms of our relationship with these so-called partner countries, to control the production of this stuff?

Admiral Tidd?

Admiral TIDD. I'll start on that one. Senator, yes, Colombia has made some very significant efforts. I think you're familiar with their aerial eradication program. That was——

Senator KING. But, haven't they backed off——

Admiral TIDD.—making progress——

Senator KING.—recently?

Admiral TIDD. That is correct. As they have negotiated a—the peace accord, one of the conditions of that peace accord included stopping the aerial eradication program and now going in for manual eradication. One of the challenges with manual eradication, they have to be able to put their military forces into and control the territory that right now has been denied territory to them. That's going to be one of the reasons they're going to be facing some very stiff fights even as the peace accord, if signed, comes into effect, because they will be going up against narcotraffickers who control that land, as well as the actual growers, the peasants themselves. This is their source of livelihood, and they are going to be giving up that source of livelihood. It'll be a——

Senator KING. It may be a source of livelihood, but it's a source of death up here.

Admiral TIDD. Absolutely.

Senator KING. I don't understand calling somebody an ally who's—and having them produce these death-dealing substances.

Same question about Mexico, Admiral Gortney.

Admiral GORTNEY. Yes, sir. The—in the crop eradication, just SEDENA alone, their navy and marine corps, about 270,000 hecta-acres and 500-—of marijuana—and 570,000 hecta-acres of poppy. It's not nearly enough. As a result, they've just purchased more helicopters, a little bit cheaper than——

Senator KING. "They" being the Mexicans?

Admiral GORTNEY. Mexicans—SEDENA and SEMAR—to increase that poppy eradication effort, as well as the other internal security challenges that they're confronting as they're working their way against the cartels.

Senator KING. Changing the subject. Admiral Gortney, your—have jurisdiction over the Arctic, or at least a significant part of it. The administration proposed, this year—and I support the proposal—for the beginning, a downpayment, if you will, on a new icebreaker. That's good. The problem is, that icebreaker will really replace what we have; it doesn't increase our capacity. Isn't it true that we really need more icebreaker capacity as the Arctic begins to open up for trade and development and transport?

Admiral GORTNEY. Well, speaking for my closest mission partner, other maritime partner, which is the United States Coast Guard, I would agree with them that they do need more icebreaker, more capacity and capability out there.

Senator KING. Yeah. I don't want to look a gift horse in the mouth. We've got to get this new one started. But, it's really—that really is replacing the——

Admiral GORTNEY. Yes, sir.

Senator KING.—the Polar Star, not giving us any new capacity. Okay.

Admiral Haney, deterrence has been a strategic basis of our nuclear strategy since 1945 or thereabouts, but deterrence rests on a theory of a semblance of rationality on the other side. Does deterrence work with North Korea? Are they concerned about the possibility of being obliterated if they attack?

Admiral HANEY. Senator King, I think—I can't tell you exactly what Kim Jung Un, the leader of North Korea, thinks today, this very minute, but he has to know that he faces a very credible response across our joint military forces if he decides to do the unthinkable.

Senator KING. That—the deterrence, the fact that that would—there would be a—assured destruction is a fact that's known in North Korea.

Admiral HANEY. Again, I have not had a opportunity to talk to the leaders of North Korea, but I am convinced they look at our whole joint military force. That's why we see reactions to some of our exercises and what have you. I think they have a keen appreciation to the fact of what we bring as a complete force, not just the nuclear capability I lead.

Senator KING. As they say, it would behoove us to let there be no misunderstanding. Of course, the other side of this question is deterrence against nonstate actors, which is even more of a difficult—from a theoretical point of view, particularly people who don't care about dying. Where do you strike back? Where do you—where is the retaliation? I think that's a—that's a second level of theoretical problem with the theory of deterrence as applied to current threats that we face.

Admiral HANEY. Senator, as you have articulated, deterrence is complex, and it requires a deep understanding of the adversary, an understanding of what feeds the adversary and, consequently, has to be tailored for each specific adversary. That requires a lot of critical thinking and overall comprehensive approaches in multiple domains as we see adversaries even—including violent extremist organizations, use cyberspace, for example, in order to recruit and in order to finance their mechanisms. Those kind of things have to become more costly for them to pursue, and it is still—I would argue that deterrence is complex, but the fundamentals still apply.

Senator KING. Thank you.

I'm out of time. For the record, could Admiral Gortney and Admiral Tidd give us something in writing on why we should not join NORTHCOM and SOUTHCOM and if there's a Goldwater-Nichols II—not now, because I am out of time, but perhaps a written statement? Because I know that's a question that's going to come up before the committee.

Admiral GORTNEY. Yes, sir. Be happy to do that.

Admiral TIDD. Yes, sir.

Senator KING. Thank you.

Senator REED. On behalf of Chairman McCain, Senator Ernst.

Senator ERNST. Thank you, Senator Reed.

I'm disappointed that our Chairman stepped out. We have some wonderful naval officers here in front of us today. Thank you so much.

But, Senator Reed, I would have you notice that the senior enlisted advisor to Admiral Tidd is an Army command sergeant major from Iowa.

Thank you so much for being with us today, Sergeant Major. Thank you, gentlemen, for your great service to our Nation.

Admiral Tidd, we had a wonderful conversation the other day, and we did talk, during our conversation, about SOUTHCOM's lim-

ited Active Duty capabilities due to the prioritization from DOD in other areas of operation. But, I am very proud of the job that our citizen soldiers do in that area. Our National Guard has done a lot of work in the SOUTHCOM AOR to support United States security and to build our partner capabilities in Central and South America. Whether, as we discussed, it's serving with honor and integrity at Guantanamo Bay or working to end the flow of narcotics into the country or partnering through state partnership programs with many of our allies, our Guard has been vital to SOUTHCOM and to our regional security.

Sir, if you could please describe some of the ongoing efforts by the Guard in SOUTHCOM, please.

Admiral TIDD. Absolutely, Senator. I think it goes without saying, we would not be able to execute the lion's share of our missions in the absence of contributions by the National Guard, whether in the form of units rotating through Guantanamo Bay, as has been so effectively accomplished, to state partnership programs that provide a sustained continuity of contact with countries over the years, building their partner capacity, enabling them to do the sorts of jobs, and also going to the Army's recently established regionally aligned force prospect that the lion's share of the regionally aligned force to the SOUTHCOM region comes out of the National Guard. It is—it's absolutely critical to our ability to execute our mission.

Senator ERNST. Okay, thank you. I appreciate it so much.

We also briefly discussed the activities of Russia, Iran, and China, and Central and South America. Could you just tell us, in this open forum, what activities you've seen in that area? That came as a surprise to me.

Admiral TIDD. Thank you, Senator.

The—as we look at the transregional nature of our activities, if you are interested in what Russia is engaged in, you don't just look at eastern Europe. If you're interested in what China is engaged in, you don't just look at the South China Sea. Iran, the same story, you don't just look at the Middle East. Russia, who—which, arguably, has virtually no strategic interests of note in the southern region, is engaged in a direct competition to displace the United States for influence within the region. They are going back in and redeveloping the historical contacts that they had with a number of countries throughout the region, developing weapon sales at extremely low rates—low costs. What gives us great concern is, they are engaging in a concerted effort to convince partners that the United States is not a reliable ally, that we are withdrawing from the region.

Essentially, any steps that plays into that narrative that makes it look like the United States does not provide the forces or is shrinking down the presence of the United States or consolidating to get at—slightly, at Senator King's point that consolidating combatant commanders simply plays into that false narrative that the United States is not interested in the region.

In China, it's largely an economic competition. They're looking for markets and resources. Iran is essentially establishing cultural centers and other sorts of activities, but, we think, at a higher level

of classification, we can talk to some of the other activities they're engaged in.

Senator ERNST. But, bottom line up front, you do believe this is something we need to keep an eye on.

Admiral TIDD. They—if you are concerned about those countries on a global scale, you cannot afford not to be watching what they are engaged in, in the SOUTHCOM region.

Senator ERNST. Thank you very much.

Thank you, gentlemen.

I'll yield back my time.

Chairman MCCAIN [presiding]. Senator Heinrich.

Senator HEINRICH. Thank you, Chairman.

Admiral Gortney, we've dramatically increased resources for Border Patrol in recent years, and we need to continue that push. I think the Chairman pressed you hard on that issue. But, we've often neglected the equally critical role that our Customs and Border Protection officers play in protecting the overall integrity of that border. Your comments really got to that when you mentioned the incredible problem of manufactured heroin in small quantities that are actually moving through our ports of entry. Should we be resourcing those ports of entry as seriously as we resource the border overall?

For some of our colleagues who don't come from border States, it's just important to remember that we have Border Patrol agents, the guys in the green uniforms, who are out there all along the border, from east to west, and then we have these officers, whose job it is to sit at the ports of entry and make sure that we stop any illegal activity, being it moving narcotics, cash, other contraband, back and forth across that border.

Admiral GORTNEY. Yes, sir. We need to invest for all of them. When I was at the port of entry there in San Diego, I was extremely impressed with the dedication of the patriots that are doing that. A very, very difficult task. Their motivation, their training, their professionalism, confronting an immense challenge. Anything we can do to increase their capacity and their capability, this Nation needs to invest in.

Senator HEINRICH. Thank you for your comments on that.

I want to follow up with Admiral Tidd and go back to 2014, when your predecessor, General Kelly, said that he was able to see 75 percent of the cocaine trafficking heading towards the United States, but that they had to, quote, "simply sit and watch it go by," unquote, because of the lack of resources. Now, I know some of that has changed, but we should all find this unacceptable, especially considering that the drug cartels are making on order of $85 billion a year in annual profits, which is literally what is fueling the violence, the corruption in Central America, and driving the refugee crisis that we see.

Admiral Tidd, how many interdiction assets do you have at your disposal? What are your requirements?

Admiral TIDD. On a given day, on average, we tend to have between five and six surface ships—those are largely Coast Guard cutters; one to two U.S. Navy platforms. The established requirement in order to interdict at the established target level of 40 per-

cent is up to 21 surface platforms. It is—it's a question of resources.

Senator HEINRICH. Right.

Admiral TIDD. Allocation of resources and priorities across all of the threats the country faces is—I don't question that. I understand it. I was involved in it. But, it is simply a matter of resources.

Senator HEINRICH. I want to thank you for your work on this front. I asked that question specifically to shine a light on how wide a gap there is between how we have resourced your men and women who do that work, and where we would like that to be, which is why I asked you specifically what the requirement is. We're nowhere close. We've gotten better. We need to keep a focus on that and not let that slip.

Let me ask you, too, What percentage of your ISR requirements are being met today?

Admiral TIDD. Overall, approximately 11 percent of the requirement.

Senator HEINRICH. I think that—that's a pretty sobering number for all of us, as well, Mr. Chair.

My time is almost done. I want to switch to Admiral Haney and just ask you a broad question about why you believe the combination of LRSO and LRSB is so important. My hope is you can also explain the strategic importance of nuclear modernization efforts and the tools that they will provide the combatant commanders like yourself.

Admiral HANEY. Well, to your first question, it is very important for our Nation to have the adequate strategic deterrence and assurance mechanisms and methodologies and capabilities. From the air leg of our triad, it's very important that our platforms are appropriately armed in order to be credible. That includes B–52 aircraft, B–2s, which we will be flying both of those for some time to come, as well as the long-range strike bomber, stealth aircraft. Even while we have stealth aircraft, it's important that we have standoff capability. As we watch our adversaries work to have better anti-access aerial denial kinds of capabilities, we must have standoff in order to manage strategic stability as we should. As a result, I see the long-range strike—long-range standoff option being critical to all of those platforms, all three of them.

Senator HEINRICH. Thank you very much, Mr. Chair.

Chairman MCCAIN. Senator Tillis.

Senator TILLIS. Thank you, Mr. Chair.

Gentlemen, I apologize for not being in the hearing. I've got a competing Judiciary hearing, and I've got to run for a vote. Admiral Haney and Admiral Gortney, thank you for being here.

Admiral Tidd, I want to focus a little bit more on your command in—at a couple of things. One, I think the 11 percent coverage for a very critical area of other region is important. I'd like for you to talk—I know a lot of times we talk about SOUTHCOM, we talk about the work we're doing in Colombia and down in Latin America, drug interdiction, but you and I have had discussions. One thing I'd like for you to expand on, and it relates to a question that Senator Ernst asked, and maybe even focus a little bit on Iran's activity in Hezbollah and a number of other things that we're seeing

there that are potentially systematically over time going to change the environment in your sphere of influence. Can you talk a little bit about that?

Admiral TIDD. With—specifically with regard to Iran, there has been a longstanding presence of Hezbollah, one of other principal surrogates of Iran in the region. Their activities have largely been involved in logistics support, providing funds back to Lebanon, to Hezbollah itself, but it also is available as a potential to conduct other activities. It's a force in being, obviously, and they watch very closely what the—we watch very closely what they are doing, where they are.

The—what makes it particularly noteworthy is, there are not large implantations within Central and South America of Muslim communities. They tend to be very small. This interest on the part of Iran is in developing partnerships, relationships, in order to escape the diplomatic isolation that they found themselves in over the last decade—couple of decades.

The greater concern that we're beginning to see now is on the part of Islamist extremist groups. There is now a general recognition throughout the region in meetings with senior security chiefs from across the Caribbean, in particular, but also Central American countries. They recognize the risk of radicalization—self-radicalization occurring within their countries. There have already been a number of fighters that have gone over to Iraq and Syria to fight. We have seen indications—there have been a number of them that have been killed. I think we all saw the video of the 14-year-old from Trinidad-Tobago that was videotaped engaged in an act of terrorism, executing a Syrian combatant. That is there, and the countries are worried about the return flow of those foreign fighters coming back.

Senator TILLIS. Thank you.

I don't want you to comment, because it relates to policy, but, you know, you could make a logical argument that, as Iran's economy improves, as money returns back to Iran as a result of this—the Iran agreement that I opposed, that we could even see more shifting of resources. It could accelerate the pace of what they're doing in your area of responsibility. I think we need to make sure that we're paying attention to it. It's not one that you normally think about when you talk about the—think about the Iran threat.

I want to, in my remaining time, have you talk about Guantanamo Bay, and not with respect to the detainees. But, there's also discussions out there about, you know, maybe we don't need Guantanamo Bay or our presence there at all. Could you give me some sense of what you think the strategic significance of that land mass is with respect to your area of responsibility and our ability to respond in that part of the world?

Admiral TIDD. Senator, the first time I visited Guantanamo Bay was in 1979. We have significant strategic interests at the Naval Station Guantanamo Bay that will continue long past whenever detention operations end. It is a critical point to support Coast Guard operations and the detection and monitoring mission across the Caribbean Basin. It is absolutely critical to supporting any sort of a migrant crisis that might occur. In fact, as I know you're aware, there is a very small MILCON [military construction] request in to

do some basic level construction. If we were to have a migrant crisis, we would need to be able to rapidly build up the facilities to deal with up to 10,000 migrants in a 72-hour period, and as many as 45,000 beyond that. Without that MILCON, we—it—we—right now, we are completely incapable of meeting that timeline, should we have to do it, and we would need that, to be able to have a fighting chance of being able to do it so that we would not have—bring that large number of migrants into the United States. It's a—it is a small downpayment that we think is probably a prudent investment to be able to do that.

Guantanamo Bay will remain critical long past the detention operations.

Senator TILLIS. I think that we just need to underscore that. If you talk about our ability to complete missions, the humanitarian missions alone, in addition to other potential uses, that it would be irresponsible for us to consider any dialogue around not having that continue to be an important asset for us in that part of the country.

Gentlemen, thank you all for your time. I will—because my colleague here almost never misses a hearing to talk about the four-two-five, I will say that I still share his opinion that that's a very important capability that we have in Alaska. I'm glad that General Milley seems to have taken that position, and I look forward to us coming to the resolution that I think my colleague from Alaska hopes we get to.

Thank you all.

Thank you, Senator.

Senator REED [presiding]. Thank you.

On behalf of Chairman McCain, Senator Hirono.

Senator HIRONO. Last, but not least. Thank you, Mr. Chairman.

Thank all of you for your testimony and being here today.

You've been asked a lot of questions, particularly, Admiral Gortney, on our missile defense system. I'm probably going to want to chat with you further, or perhaps for the record, on whether or not we are—in terms of our need to increase our capability to stop the missiles throughout the flight of the missile, whether we're putting our resources in the right proportions with regard to stopping these missiles. That—I just wanted to mention that to you as a follow-up later.

Senator HIRONO. Admiral Haney, cyber has become a significant part of the DOD establishment. The Army and the Air Force have laid out requirements and started establishing cyber-protection teams and units around the country, with many of them in the National Guard units. I wanted to ask, How is this process working? What is your forecast for when future units will be established to meet these requirements? I'd note that, in Hawaii, we have everything that is going on in the Asia-Pacific region and where—the home of PACOM [Pacific Command], NSA [National Security Agency] Hawaii, much of our defense infrastructure in the Pacific. I would certainly like to have you keep Hawaii in mind as you move forward with these cyber-protection units. Can you talk a little bit about how things are going?

Admiral HANEY. Senator Hirono, the—this initiative of using Guard units to also augment our Active Duty units, I think is crit-

ical for our future. This was a start. Clearly, National Guard gets a vote, in terms of how we continue to progress in this regard. As you know, the threats to our Nation and our international community of nations is pretty high regarding how actors, both nonstate and state actors, are applying malfeasance, in terms of working against us in the cyber domain. Critical to our critical infrastructure, critical to how we fight as a military, and what have you. Quite frankly, we continue to grow. I'm proud of the cyber-protection teams I, as the combatant commander, have gotten to work with. I know, as I've talked to other combatant commands, including the two to my left, we appreciate the work that they are able to do. We're still growing these teams. We don't have them all at the right level yet. More to follow.

Senator HIRONO. Of course, once you develop the teams, we must be ever-flexible, because they—what happens in the cyber arena is constantly changing. In terms of the timeframe for these future units to at least be put in place, what is your timeframe? Are we talking about 2 more years? A year?

Admiral HANEY. I'd have to take that question for the record, Senator. I don't have that. I know there's work going. We've just gotten started. In terms of how we will continue to build for the future, more to follow.

Senator HIRONO. Thank you very much.

Admiral Tidd, regional epidemics like the Zika virus are concerning and threatening the well-being of our citizens. One case of the Zika virus was reported this year, so far, in Hawaii, and four were also reported in 2015 and 2014. Can you describe the role that SOUTHCOM has in dealing with epidemics such as these?

Admiral TIDD. Yes, Senator. The—as a result of the initial Ebola outbreak, a large interagency network was put together, and SOUTHCOM was a key participant in that. That was reenergized with the outbreak of Zika that we're seeing.

We remain postured to be able to respond to requests for assistance from our partner nations in SOUTHCOM, but we have put out specific guidance to the men and women, part of our command, who are operating down in that region Those—the policies that affect them, the protective measures, are largely the—exactly the same protective measures that have been in place to protect them from exposure to dengue fever, to the Chikungunya, and other mosquito-borne illnesses. We continue to emphasize that.

To date, we've had only two of our military personnel—two males—who have been diagnosed and confirmed to have had Zika. They've recovered and returned to duty. We've had one family member—a pregnant female family member who has taken advantage of a policy to return to the United States. The family was—had been scheduled to return already, and it was a slightly accelerated return on her part.

But, we're working with the countries, primarily in training in the mosquito eradication programs. Their militaries obviously are very heavily engaged in those activities. That's where we stand right now. We have a Navy medical unit down in Peru that has been doing a lot of work in the experimental development of vaccines and that type of work, and also in the detection.

Senator HIRONO. Thank you very much. Especially for places such as Hawaii, with so much tourist traffic from areas that have had these outbreaks, it is really important. Thank you very much for your efforts.

Admiral TIDD. Senator.

Senator HIRONO. Thank you, Mr. Chairman.

Senator REED. On behalf of Chairman McCain, Senator Graham, please.

Senator GRAHAM. Thank you all.

Admiral—I can say that to everybody. The Navy's doing well with these commands. Have any of you served in Iraq or Afghanistan?

[A show of two hands.]

Senator GRAHAM. Admiral Gortney and Admiral Tidd. While there, did you serve with American Muslims in uniform?

Admiral GORTNEY. Yes, sir, I did.

Admiral TIDD. Yes, sir.

Senator GRAHAM. What is your view of the service of those who are Muslim in the United States military?

Admiral GORTNEY. They're patriots who serve their Nation.

Admiral TIDD. Concur.

Senator GRAHAM. Do you agree that we're in a war between radical Islam and the world at large?

Admiral GORTNEY. Yes, sir. It's a generational war.

Senator GRAHAM. That the biggest victims of radical Islam are people within the faith who will not bend to their will: other Muslims.

Admiral GORTNEY. I'd have to say they're a threat to both inside and outside the faith.

Senator GRAHAM. But, when you add up the numbers of people killed, there's more Muslims than anybody else.

Admiral GORTNEY. That's correct.

Senator GRAHAM. Do you believe it's in our national security interest to help those in the faith who would fight back against radical Islam?

Admiral GORTNEY. Yes, sir, I would.

Admiral TIDD. Yes, sir.

Senator GRAHAM. Thank you.

I just want to be on the record, here, that, to those 3,500, plus or minus, American Muslims serving in uniform, I appreciate your service, that of your family, and I respect your faith.

Admiral Gortney, in the next decade, if nothing changes in North Korea and potentially Iran, are we going to face more threats from a missile launch against the United States by a rogue nation, or less?

Admiral GORTNEY. A greater threat, sir.

Senator GRAHAM. Okay. If we go back to sequestration, do we compromise your ability to deal with that threat?

Admiral GORTNEY. I believe it would, sir.

Senator GRAHAM. Admiral Tidd, over the next decade, do you see more instability in the region in Southern Command, or less?

Admiral TIDD. I see no less.

Senator GRAHAM. Okay.

Admiral TIDD. I see no less.

Senator GRAHAM. How many ships are you supposed to have?

Admiral TIDD. Senator, if I were to accomplish the goal of 40 percent interdiction, I would require 21 ships.

Senator GRAHAM. How many do you have?

Admiral TIDD. On average, about six to seven.

Senator GRAHAM. To get to where you need to go, you need more ships.

Admiral TIDD. Correct.

Senator GRAHAM. How many Navy ships do you have available to you?

Admiral TIDD. On average, one to two.

Senator GRAHAM. The rest are Coast Guard.

Admiral TIDD. They are, yes, sir.

Senator GRAHAM. In Southern Command, the United States Navy is able to generate two ships?

Admiral TIDD. In—because of the demand for surface platforms in other theaters that are a higher priority, yes, sir, that's correct.

Senator GRAHAM. If we sent you more ships, it wouldn't be a waste of money, would it?

Admiral TIDD. Senator, it would come at the expense of other higher-priority theaters.

Senator GRAHAM. But, if we had a larger budget, it would make sense to build more Navy ships, at least from your command's point of view?

Admiral TIDD. Sir, I would never turn down additional ships.

Senator GRAHAM. When you say you need 17—what number did you say?

Admiral TIDD. Twenty-one.

Senator GRAHAM. Twenty-one. I'm sure somebody just didn't make that up. That was——

Admiral TIDD. No, sir, there is a fairly lengthy study that went in to derive that requirement.

Senator GRAHAM. That 40 percent interdiction is drugs and other contraband coming to the country?

Admiral TIDD. That's correct.

Senator GRAHAM. If we've got a drug problem here, we're not doing much to stop it, because we're certainly under-resourcing you. Would you agree with that?

Admiral TIDD. I would.

Senator GRAHAM. It's one thing to build a wall, which makes sense to me. It—but, it also seems like we should build up the Navy to interdict the flow of drugs and other contraband into our country.

If we go back to sequestration, the chance of you getting more ships goes down, not up. Is that correct?

Admiral TIDD. Senator, we're still suffering from the hangover from the last sequestration. Ships that had delayed maintenance, aircraft that had delayed maintenance. Those ships are not available now to be able to operate in our theater. Any future sequestration would be catastrophic.

Senator GRAHAM. Admiral Haney, in your lane, what's the effect of going back to sequestration from your point of view?

Admiral HANEY. My point of view, going back to sequestration would be crippling, in that it would put significant risk of these

programs that we need for our joint military force, as a whole, and particularly these long-term programs that are associated with my mission space.

Senator GRAHAM. Thank you all for your service.

Senator REED. Thank you, Senator Graham.

On behalf of Chairman McCain, thank you, gentlemen, for your testimony and for your service.

The hearing is adjourned.

[Whereupon, at 12:03 p.m., the hearing was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JAMES INHOFE

NORTHCOM

1. Senator INHOFE. How do you assess North Korea's current ballistic missile capabilities and how does the fiscal year 2017 budget request support your ability to counter the threats?

Admiral GORTNEY. North Korea has been developing and producing ballistic missiles for over three decades. Through its space launches, North Korea has successfully demonstrated many of the technologies required for an intercontinental ballistic missile (ICBM). Meanwhile, North Korean military parades in recent years have showcased road-mobile ICBMs, which we assess the regime is developing primarily as a means to deter external attack. Though not yet flight-tested, we assess they are capable of ranging the continental US, albeit with low reliability.

We are well-postured against the current threat from a rogue nation. The Ground Based Midcourse Defense system covers all of the United States, including the East Coast, against missile threats from North Korea. Looking ahead, we must continue investments designed to improve our sensor architecture, enhance our kill vehicles, and sustain/test the entire ballistic missile defense system. Programs funded in the budget such as the Long Range Discrimination Radar, the Re-designed Exoatmospheric Kill Vehicle, discrimination improvements for Homeland defense, and the Space-based Kill Assessment experiment are key contributors.

2. Senator INHOFE. Do you believe that Russia is testing the readiness of our forces along the western boundary? Will the fiscal year 2017 DOD budget impact your ability to protect our shores from these threats?

Admiral GORTNEY. With regard to Russian activities on their Western boundary (e.g. the Baltics or Ukraine), this is really a USEUCOM question, but yes, I believe they are testing our forces. As the Commander of NORAD and USNORTHCOM, I am especially cognizant of the potential of Russia's Northern Fleet and its Long Range Aviation based in the West to reach North America. Over the past six years, I have seen Russia resume some of its naval operations in the approaches to North America, and I have seen an increase in the amount of strategic heavy bomber activity globally.

With regard to Russian activities to our West (e.g. in the United States Arctic, Alaska and the Aleutians or the West Coast of CONUS), yes, I am absolutely convinced they are testing our forces, assessing our capabilities, and sending strategic messages (like flying strategic heavy bombers off the West Coast on the 4th of July).

I also believe that the fiscal year 2017 budget request strikes a prudent balance among the modernization of the joint force, its size, and its readiness, and continues to keep faith with servicemembers and their families. We are countering Russia's aggressive policies through investments in a broad range of capabilities. The fiscal year 2017 budget request will allow us to modify and expand air defense systems, develop new unmanned systems, design a new long-range bomber and a new long-range stand-off cruise missile, and modernize our nuclear arsenal.

3. Senator INHOFE. With across the board military personnel reductions, what other contingencies will fall back on the states that federal elements used to support?

Admiral GORTNEY. I am confident that the Department, with its total force of Active, Reserve, and National Guard forces, is fully ready to carry out its missions, including responding to contingencies. Therefore, I do not foresee any contingencies falling back on the states.

4. Senator INHOFE. You acknowledged in your opening statement that sequestration cuts deeply impacted NORTHCOM's readiness, how much will another year of sequestered funds impact the forces of NORTHCOM?

Admiral GORTNEY. The stability provided by the Bipartisan Budget Act of 2015 is a much-needed step in the right direction. However, what is needed most is a permanent fix to the Budget Control Act of 2011 to restore predictability and stability into the budget process. Another year of sequestration will impact the Services' plans and schedules to regenerate force readiness and modernize capabilities in order to keep pace with existing threats.

STRATCOM

5. Senator INHOFE. In order to ensure one of our nuclear triad legs remains effective, are the DOD and Navy budgets going far enough?

Admiral HANEY. Our current Triad systems are remaining in service well beyond their expected service lives and we must properly resource our recapitalization programs across all the Services to avoid unacceptable gaps is our deterrence capabilities. The Triad enterprise is receiving strong budget support from the Navy and Air Force. However, our continued success depends on the Department of Defense and Congress providing stable and adequate funding over the long-term.

Recapitalizing our sea-based strategic deterrent force remains a top Defense Department and USSTRATCOM modernization priority. The fiscal year 2017 President's Budget request for *Ohio*-class SSBN sustainment, Trident II D5 missile modernization, and the *Ohio* Replacement SSBN program is sufficient to support USSTRATCOM mission requirements. When the *Ohio*-class submarines begin retiring in 2027, they will be the longest served submarines in U.S. Navy history at 42 years. Given the previous decision to delay the *Ohio* Replacement program, there is no additional engineering margin to extend our *Ohio*-class submarines. I fully support the Navy's effort to leverage lessons-learned from the *Virginia*-class attack submarine acquisition program as well as manage overall force cost by transitioning the very capable Trident II D5 missile into the *Ohio* Replacement SSBN.

Similar to our sea-based deterrent force, our land-based strategic deterrent is in need of recapitalization to ensure it remains credible in the future. The Minuteman III was initially deployed in the 1970s and will remain in service through 2030, nearly sixty years of service. While the missile has gone through multiple life extension programs, much of the launch infrastructure has not been modernized since initial deployment in the 1960s. The Ground Based Strategic Deterrent program is the first substantial full weapon system recapitalization effort since the Minuteman III entered service and must start deploying by the mid-2020s to prevent a strategic capability gap.

The Air Force is upgrading and recapitalizing air-delivered strategic capabilities to ensure the most flexible and visible Triad leg will continue to fully support U.S. deterrence and assurances commitments worldwide. USSTRATCOM fully supports Air Force ongoing efforts to sustain legacy platforms (B–2/B–52) until their planned end-of-life, and develop and field the new B–21 dual-capable bomber and Long Range Stand-off cruise missile to maintain an effective and credible air delivered nuclear deterrent.

6. Senator INHOFE. Are the systems currently in our arsenal currently degrading our nuclear deterrent? If so, when were the last modernizations completed?

Admiral HANEY. Today, our nuclear forces are safe, secure, effective, and ready to support our national security challenges. However, our legacy Triad delivery and weapon systems are at or well beyond their expected service lives, with little to no margin to absorb additional risk. The Defense Department is faced with two formidable but not insurmountable challenges: sustaining our current deterrent systems until retirement and deploying future forces without degrading our deterrent capabilities. USSTRATCOM fully supports ongoing efforts to sustain legacy platforms and develop and field those capabilities required to accomplish the Deterrence and Assurance mission. Development of these follow-on capabilities must remain on track to avoid strategic capability gaps.

The *Ohio*-class SSBN fleet is undergoing significant sustainment efforts to maintain high operational availability and extend the service life. Simultaneously, the Navy is conducting a Trident II D5 missile life extension in order to transition the missile to the *Ohio* Replacement SSBN. The *Ohio* Replacement Program is the first sea-based recapitalization effort in over 30 years and must proceed on schedule to maintain an effective and credible sea-based deterrent. There is no additional engineering margin to extend our *Ohio*-class submarines. When the *Ohio*-class sub-

marines begin retiring in 2027 at 42 years of service life, they will be the longest serving submarines in U.S. Navy history.

The Minuteman III Intercontinental Ballistic Missile (ICBM) was initially deployed in the 1970s and will remain in service through 2030. Unfortunately, much of the launch infrastructure has not been modernized since initial ICBM deployment in the 1960s. The Air Force estimates Minuteman III is sustainable until flight system attrition begins in the 2028. The Ground Based Strategic Deterrent (GBSD) program is the first substantial full weapon system recapitalization effort since the Minuteman III entered service and must start being fielded by the mid-2020s. Successfully fielding the GBSD weapon system will ensure our ICBM deterrent capability beyond 2030. Like the sea-based strategic deterrent, ICBM enterprise success depends on stable and adequate funding over the long-term.

Our dual-capable B–52 and B–2 bombers and their associated weapons have performed their nuclear deterrent mission for over seven decades through significant sustainment and modernization efforts. The Air Force has ensured the effectiveness of these aging aircraft through multiple payload capabilities, survivability and communications upgrades. Our legacy capabilities are effective against current threats, but will be increasingly challenged in the 2020s as adversaries field more complex air defenses. The B–21 Long Range Strike-Bomber, Long Range Stand-off cruise missile, and B61–12 gravity bomb are all needed to provide the flexibility, visibility and capability to meet strategic mission needs and support extended deterrence commitments to our allies.

7. Senator INHOFE. If it took six years to create the first 84 teams, is it reasonable to assume that USCYBERCOM is still on track to create the remaining 50 in the next 30 months? How crucial is current funding levels to this goal?

Admiral HANEY. In 2013, my sub-unified command, USCYBERCOM, began to build the capability known as the Cyber Mission Force (CMF). Of the target total of 133 CMF teams, 123 are in varying levels of development. We have 33 teams that have achieved Full Operational Capability (FOC), and 68 have achieved Initial Operating Capability.

USCYBERCOM, working with the Services, remains committed to achieving FOC for the entire Cyber Mission Force by 30 Sep 2018. The current funding levels and a consistent funding stream are crucial to meet the timelines given to USCYBERCOM. If the Defense Department is impacted by budget shortfalls or delays, this goal and associated timelines will be severely impacted.

SOUTHCOM

8. Senator INHOFE. Where is SOUTHCOM restricted in dealing with this problem prior to it reaching the United States? If you had additional allocations in the budget, how would you rectify this shortfall?

Admiral TIDD. SOUTHCOM does not have any specific restrictions, however, we are limited in our ability to execute our statutory requirement to detect and monitor (in support of law enforcement interdiction) illicit traffic in maritime and sea domain en route to the United States due to a lack of resources. Our largest shortfall is not in funding, but in surface assets with which to conduct this mission.

In order to meet the U.S. Government national goal to remove 40 percent of documented cocaine movement through the transit zone, USSOUTHCOM requires 21 vessels. Over the last year, our average number of surface assets has been seven, the vast majority of which were U.S. Coast Guard assets. Our current ideal breakdown of the 21 vessels includes 14 medium range ships (similar to the Littoral Combat Ship or future Offshore Patrol Cutter), 3 long range ships (like a Cruiser, Destroyer, or National Security Cutter), and 4 coastal patrol boats. The most useful vessels to USSOUTHCOM are medium and long range ships equipped with a flight deck that provides persistent offshore presence, capable of conducting Airborne Use of Force (AUF), with embarked law enforcement teams.

As the Services face asset shortfalls and readiness challenges, those shortfalls trickle down to the Combatant Commands. Frankly, SOUTHCOM feels the cuts associated with those shortfalls in a disproportionate manner. Because we cannot buy our way out of an asset shortfall, we use any additional funds to build our partners' capacity to complement our interdiction efforts and protect their own territorial land and waters. We also look at innovative ways to employ contract and experimental surface and air platforms.

9. Senator INHOFE. Despite the excellent job our troops at GITMO under very difficult circumstances, a court order is denying our female troops from performing the

jobs they are trained to do—what is the current status of this court order? What impact is it having on the morale of our service-members there?

Admiral TIDD. Thank you for your recognition of our troops, Senator. All of the personnel participating in the detention operations mission at GTMO—to include military, civilian, male, and female—perform their duties with the utmost professionalism, to the highest standards.

This "temporary" court order was issued on January 7, 2015 and is still in effect. The court's order limits "the use of female guards to physically touch the accused during movements to and from attorney-client meetings and Commission hearings, absent exigent circumstances." It has resulted in decreased unit readiness, decreased unit cohesion and a negative impact on morale. Additionally, the troops are concerned it could impact their career progression . . . .it is our responsibility to ensure that does not happen.

10. Senator INHOFE. What specifically is SOUTHCOM conducting with Columbia to ensure our support is evident? Is WHINSEC (Western Hemisphere Institute for Security Cooperation) and IMET (International Military Education and Training) assisting in ridding Columbia of the FARC rebels?

Admiral TIDD. Colombia is a strong strategic ally, with which we coordinate closely every day to further security throughout the entire region. Colombia's transformation has been remarkable, but it will still face an uncertain period with many new challenges even if a peace accord is reached. For Colombia to successfully consolidate its hard-earned gains, the United States must remain as fully engaged a post-peace accord partner as we ever were during Colombia's struggles. United States Southern Command will continue to support Colombia's efforts to take the FARC off the battlefield, successfully implement a new counternarcotic strategy, establish state presence in areas where it had not previously existed, conduct humanitarian demining, and transform the Colombian military to adapt to an evolving security environment.

As a broader United States interagency, it is also essential that we continue providing Colombia a robust and agile assistance package that will help it successfully address the new security, developmental, and human rights challenges posed by a post-accord environment. This includes the training, education, and frankly, relationship-building that takes place through programs such as IMET at institutions such as the Inter-American Air Forces Academy (IAAFA), the United States Army Sergeants Major Academy (USASMA), the National Defense University (NDU), all U. S. Service War Colleges, and WHINSEC.

WHINSEC plays a critical security cooperation role in Colombia and sets conditions for future access and long term relationships—in fact, many WHINSEC alumni have attained key positions of prominence across the Colombian military. The school's curriculum is an integral component of the Colombian military officers and non-commissioned officers' development and continued professionalization, "Preparing the leadership of the future."

- WHINSEC plays an important academic and technical advisory role assisting the Colombian Army to develop new courses to support transformation and creation of new military occupational skills to perform DDR related missions.
- WHINSEC's instructors have done a superb job integrating into Colombia the same academic core values used in the WHINSEC schoolhouse. Through collaboration with WHINSEC, Colombian military professional development courses now include elements of military justice systems & procedures, civil-military relations, and human rights modules, all of which will be directly integrated into DDR initiatives.
- WHINSEC's U.N. Peacekeeping Operations Course is another example where Colombian officers are trained to support DDR challenges using contemporary lessons. In these courses, Officers are given instruction and preparation to assume DDR management and advisory roles as transition staff members. Additionally, the Colombians utilize this course as part of their "train the trainer" program for the newly established Peace Operations and Civil Affairs Training Center (ESMAI) located in Bogota, which will support future Colombian Military U.N. PKO missions as part of their transformation Regional Security Exporter line of effort.

Over the years the IMET account has been one of the most effective security cooperation programs in the SOUTHCOM arsenal. Not only has a large number of the Colombian military senior and mid-level leadership professionally benefited from IMET courses, but the application of the knowledge learned during IMET funded courses has been instrumental in improving the overall defense capabilities of the Colombians. The IMET program will continue to support the DDR and Colombian Ministry of Defense Transformation process through these specific types of courses:

- Strategy and Defense Policy—provide the Colombian military the skills needed to formulate policy and strategy to address security, developmental, and human rights challenges during the DDR process.
- Executive programs in Defense decision making—provide the Colombian military the knowledge and lessons that could be applied during the transformation planning.
- Joint Operations—educate the COLMIL officers in joint operations, decision making, and planning processes and combined-operations in a joint environment.

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

DRUG TUNNELS

11. Senator AYOTTE. You testified that the collaboration between Israel and the United States with regard to tunnels has "been very, very beneficial, both for us and for our partners in Customs and Border Patrol." Can you provide some details?

Admiral GORTNEY. Yes, collaboration with Israel has provided significant gains in terms of our knowledge of tunnel issues. With Israel, we share similar problem sets on the border. Four specific areas where we have gained invaluable knowledge are: magnetic, mapping and borehole technologies for sensing and detecting tunnel activities; remediation techniques to temporarily or permanently close tunnels; identification of key indicators of tunnel activity and tunnel improvised explosive devices; and adoption of Israeli equipment ('foam in a bag') currently in use in Arizona to block tunnel entry and exit points.

12. Senator AYOTTE. Will you keep my office updated on this and let us know what more we can do to help you to fight drug smuggling generally and also to fight drug tunnels under our southern border?

Admiral GORTNEY. Yes, I will keep your office updated on our efforts. We support the Department of Homeland Security in carrying out its mission to secure the Southwest Border, including through detection and monitoring, as well as with tunnel detection capabilities and analytical support. Joint Task Force North is my lead for coordinating our Federal military support to law enforcement counternarcotics/counter-transnational organized crime efforts along the Southwest Border, providing a critical link with Federal military, National Guard, and law enforcement partners through their long-standing relationships.

UNITED STATES NAVAL STATION GUANTANAMO

13. Senator AYOTTE. Setting aside the detention center, what is the strategic and operational value of United States Naval Station Guantanamo?

Admiral TIDD. The Naval Station at Guantanamo Bay is an important strategic base, and the only one of its kind in the Western Hemisphere. This base supports the Department of Defense and the broader U.S. Interagency, to include the Department of State (DOS) and Department of Homeland Security (DHS) in various mission sets. From this strategic base of operations, the U.S. conducts detection, monitoring, and intercept of illicit traffic and other threats, as well as staging for disaster and humanitarian relief efforts. There is also an active DOS and DHS Migrant Operations Center at GTMO that maintains a steady-state migrant processing mission.

As Secretary of Defense Carter recently stated before the House Appropriations Committee Subcommittee on Defense in response to a question about the future of the Naval Station, "GTMO is a strategic location . . . The Naval Station is secure."

14. Senator AYOTTE. Would it be a mistake to give it back to Cuba? If so, why?

Admiral TIDD. I agree with the Secretary of Defense that Guantanamo Bay is a strategic operating base and that it would be a mistake to lose it. Again, it is the only one of its kind in the Western Hemisphere and the missions of various Departments would be compromised if we could no longer operate out of that facility.

MILCON, SUBSTANDARD FACILITIES

15. Senator AYOTTE. What are SOUTHCOM's MILCON requirements for JTF Gitmo so that we can ensure our troops there have the safe and quality living conditions they deserve?

Admiral TIDD. Senator, thank you for your steadfast support of the personnel carrying out the important detention operations mission at Guantanamo Bay. I would also like to thank the Congress for funding two MILCON projects at GTMO that

are already underway and will improve both the safety and quality of life of our troops—the dining facility, and the clinic that greatly reduces detainee movements which reduces risk to the guard force.

As noted in our response to Chairman Thornberry of the House Armed Services Committee, we do have an unfunded requirement for unaccompanied personnel housing facilities at GTMO. The existing facilities were constructed 10 to 60 years ago. The Department has requested $13.7M in fiscal year 2017 Facilities, Sustainment, Restoration, and Modernization (FSRM) funding, but this will only provide a short-term fix. Full replacement of these facilities is the safest option, at a cost of $115M.

QUESTIONS SUBMITTED BY SENATOR DAN SULLIVAN

THE ARCTIC AND THE 4–25 IBCT (ABN)

16. Senator SULLIVAN. In your best military judgment, considering the statements from senior military leaders below—both before and after the recent announcement—do you support General Milley's desire and best military judgment to keep the 4–25 IBCT (ABN)—in its entirety—in Alaska for at least another year, if not longer?

Admiral GORTNEY. I support General Milley's decision to keep the 4–25th IBCT (ABN) for another year. Alaska is a strategic location, and having one of the Army's five airborne brigade combat teams in Alaska gives the United States flexibility in a time of strategic instability. While not assigned to USNORTHCOM, the 4–25th IBCT (ABN) is able to take advantage of cold weather training facilities in an austere environment that are matched by few places in the world.

17. Senator SULLIVAN. In your best military judgment, what kind of unique capabilities does the 4–25 IBCT (ABN) bring to USNORTHCOM?

Admiral GORTNEY. The 4–25th IBCT (ABN) are worldwide deployable forces assigned to USPACOM. The 4–25th IBCT (ABN) has the capability to support USNORTHCOM's defense support of civil authorities and search and rescue missions throughout the austere conditions in the Alaska Joint Operations Area, when approved by the Secretary of Defense.

18. Senator SULLIVAN. What kind of message does keeping the unique capabilities of 4–25 IBCT (ABN) in Alaska send to President Putin about United States resolve in the Arctic?

Admiral GORTNEY. The 4–25th IBCT (ABN) is a worldwide deployable force assigned to USPACOM with a flexible warfighting capability for our nation similar to the other four airborne brigade combat teams in the United States. Their forward-based location in Alaska underscores the United States commitment to worldwide deployability and the capability to operate in all environments.

QUESTIONS SUBMITTED BY SENATOR MIKE LEE

19. Senator LEE. Between SOUTHCOM, NORTHCOM, the Drug Enforcement Agency, Department of Homeland Security, Central intelligence Agency, Department of Justice, and others agencies involved in the region, who is the lead on addressing the regional violence in Mexico and Central America as it pertains to U.S. security?

Admiral GORTNEY. In line with the President's National Security Strategy of 2015, regional violence in Mexico and Central America is addressed through a whole-of-government approach, with U.S. military, intelligence, law enforcement, and other agencies working together in close coordination under their respective agency authorities to engage foreign partners and to defend the United States Homeland. I believe the primary threat to the U.S. security in this region stems from transnational criminal organizations and the violence and instability that results from their illicit activity. The U.S. Department of State and our Embassies in each country lead the coordination efforts of U.S. federal agencies as we support our partners in Mexico and Central America.

Admiral TIDD. First and foremost, each nation has primary responsibility for securing its own sovereign territory, to include the security of its citizens. However, it is clearly in the interest of the U.S. to support those nations as they address internal as well as regional security because their security is inextricably tied to our own. As with all matters of foreign affairs, the State Department has the overall lead for U.S.engagement abroad. I can speak specifically to the Department of De-

fense's role, which is to support our partner nations and other U.S. Federal Agencies' efforts in the region within the authorities granted to the department.

20. Senator LEE. What, if any, role has SOUTHCOM had in the United States' response to the Zika virus in Brazil and Latin America, and what role will this Combatant Command play in implementing programs or utilizing funding if granted by Congress?

Admiral TIDD. The President's supplemental request of $1.9B for Zika response did not include any funds for the Department of Defense (DOD). However, the supplemental did include transfer authority to allow for flexibility across the Federal Government to respond to emerging requirements. The support that SOUTHCOM is currently providing to partner nations who request assistance is being funded out of our baseline OHDACA funds.

To date, we have provided three minimal cost projects for Zika mitigation and prevention in Colombia, and one minimal cost project in Costa Rica. In Colombia, the projects provided for the purchase of basic preventative materials (i.e. mosquito repellent, mosquito nets) to be distributed to the local population in Zika endemic areas. In Costa Rica, the project will support the Ministry of Health in the form of laboratory reagents and supplies for Zika virus detection. In addition, as part of our State Partnership Program, we have provided Subject Matter Expert Exchanges (SMEEs) in vector control and disease surveillance for both Suriname and Guyana.

Navy Medicine Research Unit-6 (NAMRU–6), located in Lima, Peru, developed a laboratory improvement program for partner nation military laboratories. PROMELA (Programa de Mejoramiento de Laboratorios de las Fuerzas Militares de Latinoamérica) improves partner nation military laboratories' capability to test for pathogens. In addition, NAMRU–6 is actively engaged in infectious disease research projects in the region through satellite sites in Colombia, Guatemala, Honduras, Paraguay, Bolivia, Venezuela, and Peru and has the ability to test for the Zika virus.

At the request of the Government of Paraguay, SOUTHCOM will partner with USAID, the Pan American Health Organization, and the Ministry of Health to identify gaps within their institutions to effectively respond to the Zika virus. An entomologist and virologist from NAMRU–6 will conduct assessments to include an evaluation of the Paraguay's capacity to detect and diagnose the virus as well as addressing treatment, surveillance, pest management, waste disposal, and vector control.

If requested, SOUTHCOM could provide additional regional support to include vector control education, supplies and materials; laboratory supplies; and SMEEs on field sanitation, disease surveillance, epidemiology, and entomology.

21. Senator LEE. I have read in some slightly dated material that SOUTHCOM, "... is supporting the development of a regional maritime interdiction strategy, as well as providing equipment and training to improve maritime and air domain awareness." What is the status of developing this multinational maritime strategy, and what plans does SOUTHCOM have going forward with this strategy?

Admiral TIDD. The strategy to which you are referring is an annex to the larger U.S. Strategy for Engagement in Central America, an effort being led by the International Narcotics and Law Enforcement Bureau at the Department of State. The purpose of this annex is to assist partner nation maritime forces in building comprehensive maintenance and logistics systems that will improve maritime operational readiness within their littoral waters, and build the systems and a culture for effective preventative maintenance within the respective maritime service(s). This is funded by various State Department foreign assistance accounts, mainly International Narcotics Control & Law Enforcement, Foreign Military Financing, and International Military Education & Training.

SOUTHCOM contributes to this effort via a broad range of activities which build partner nation capacity to counter illicit trafficking. Our primary focus is on those partner nation units which have a clearly established role in directly supporting law enforcement efforts. We have conducted baseline assessments of these units' capabilities, and provide a combination of training, equipment, and infrastructure support as appropriate to mitigate their most critical capability gaps. Examples include the provision of sensors for maritime patrol aircraft, high-speed interceptor boats and tactical radio systems, construction of coastal stations and command center facilities, and training on maintenance/logistics support systems.

22. Senator LEE. In addition to the detention center at Guantanamo Bay, there is also the critical Naval Base. Why is this base so useful for our operations in the Caribbean? What strategic value do we gain by maintaining this presence?

Admiral TIDD. The Naval Station at Guantanamo Bay is the only strategic base of its kind in the Western Hemisphere. This base supports the Department of Defense as well as the Department of State (DOS) and Department of Homeland Security (DHS) in various mission sets. From this strategic base of operations, the U.S. conducts detection, monitoring, and intercept of illicit traffic and other transnational threats, as well as staging for disaster and humanitarian relief efforts. There is also an active DOS and DHS Migrant Operations Center at GTMO that maintains a steady-state migrant processing mission.

As Secretary of Defense Carter recently stated before the House Appropriations Committee Subcommittee on Defense in response to a question about the future of the Naval Station, "GTMO is a strategic location . . . The Naval Station is secure."

23. Senator LEE. Congress has previously taken an interest in the security situation surrounding the Olympic games, as they are known for being targets of terrorist attacks, havens for trafficking, and sources of international political tension. What are the security concerns surrounding the 2016 Olympic Games in Rio de Janeiro, and how is SOUTHCOM involved in addressing them?

Admiral TIDD. We share your concern that a gathering of this size with a high level of media exposure providing a world-wide audience is a natural target. We also share Brazil and the international community's commitment to ensuring a safe and secure 2016 Olympic Games.

All U.S. security support for the Olympics is being coordinated by the International Security Events Group (ISEG), which is led by the Department of State. In response to specific Brazilian requests, SOUTHCOM has provided training, subject matter expert exchanges, and other support to assist Brazil in expanding its capacity to deal with threats in preparation for the Games. Brazilian Federal Police and Naval Special Forces are participating in a Joint Combined Exchange Training (JCET) with U.S. Special Forces with a focus on security operations at key Olympic venues. United States Special Forces units have also received an invitation to observe the Brazil Federal Police Special Operations Units at the Integrated Tactical Center in Rio de Janeiro, which is a great opportunity to integrate our nations' counterterrorism forces. We stand ready to support our Brazilian partners in achieving the goal of a safe Olympic Games.

24. Senator LEE. As the Department of Defense has struggled with how to fight ISIL in the Middle East and North Africa, much attention ahs been given to this and other terrorist organizations in that region. We know, however, that terror groups also seek havens in South and Central America and have been successful in launching attacks in such places as Argentina in the past. What efforts are being made to prevent the growth of Sunni and Shia extremist groups in South America—both in terms of recruitment and plotting of attacks in the region? Has there been any noticeable increase in activity in the region, or any sense of competition between Iranian sponsored groups and ISIL?

Admiral TIDD and Admiral GORTNEY. Both Sunni and Shi'a Islamic extremists are present in Latin America and primarily engage in support activities, radicalization, and recruitment on behalf of terrorist organizations abroad. We asses that extremists in the region do have the capability to support an attack against Western interests.

Unlike other parts of the world, however, there is relative peace and understanding between Sunni and Shi'a Muslims in the region. Of concern is the possibility that those who are returning from conflict zones in the Middle East could enflame religious hostilities, possibly leading to widespread sectarian violence within the region's currently moderate Muslim communities. In a worst case scenario, this could lead to instability in some regional nations.

ISIL's strategic communication efforts have resonated in parts of Latin America and the Caribbean. We believe at least 120 foreign terrorist fighters have traveled from the region to join ISIL in Syria or Iraq. The spread of violent extremist ideology in the Caribbean has been a long-standing concern—not just for us, but for our friends and partners across the region—especially given the Caribbean's close geographical, cultural, and linguistic ties to the United States. This is especially disconcerting given that many partner nations are unable to monitor the potential return of foreign fighters and often lack robust counterterrorism laws and capabilities to confront this threat.

It has become apparent to us that with each advancement in our understanding comes a corresponding increase in our awareness of the threat and the potential these organizations have to threaten the U.S. and its interests within Latin America and the Caribbean.

Lebanese Hezbollah maintains an extensive regional network of supporters and sympathizers, some of whom are involved in trade-based money laundering and other illicit activities to generate revenue (in the range of tens of millions of dollars annually), a portion of which goes to support the parent organization in the Middle East. Lebanese Hezbollah also maintains an infrastructure with the capability to conduct or support terrorist attacks. As with every aspect of our counterterrorism efforts, the United States Government remains vigilant against these threats, working closely with our partners to protect the southern approaches to the United States.

SOUTHCOM's counterterrorism (CT) efforts focus on building and supporting partner nation capacity to detect and disrupt terrorist threats within their borders. We are working with partners from across the region to counter extremism, recruitment, and radicalization to violence in vulnerable communities. Over the past year our Special Operations Forces (SOF) conducted multiple engagements such as subject matter expert exchanges, counterterrorism-focused exercises, and civil affairs activities. These efforts—coupled with support to U.S. Country Teams and interagency operations—ensure our nation and those of our friends remain secure. We are also exploring how counter network approaches might improve our counterterrorism efforts.

QUESTIONS SUBMITTED BY SENATOR CLAIRE MCCASKILL

COMMANDER, U.S. STRATEGIC COMMAND—B–2

25. Senator MCCASKILL. With the recent deployment of three B–2 Spirits from Whiteman Air Force Base to the U.S. Pacific Command area of responsibility, I am pleased to know that there is a program in place to upgrade their communications capabilities. I know there has been a lot of discussion regarding the affordability of maintaining and upgrading the nuclear triad and I also understand next generation programs can be a timely matter with the length of time the acquisition program can take. When will this upgrade be complete?

Admiral HANEY. Bombers are the most flexible and visible leg of the Triad. They provide key capabilities in support of U.S. deterrence and assurance commitments worldwide, and play an important role in conventional power projection. The B–2 Stealth Bomber plays a uniquely important role in U.S. conventional power projection and nuclear deterrence. Robust and survivable communications are essential to execute world-wide conventional and nuclear deterrence and assurance missions.

The Advanced Extremely High Frequency (AEHF) SATCOM program provides robust anti-jam and highly survivable connectivity to ensure that the nation's only penetrating stealth bomber will continue to be able to strike any target worldwide. The B–2's AEHF and receive-only very low frequency (VLF) modernization programs are instrumental in supporting the bomber's conventional and nuclear missions, especially in anti-access, area denial environments. The B–2 AEHF program is fully funded and on track to field in 2021.

The B–2 is also receiving Increment 1 of the Common Very Low Frequency Receiver (CVR Inc 1), which directly supports nuclear command and control effectiveness. CVR Inc 1 will start fielding in late 2017. The B–2's AEHF and CVR Inc 1 programs leverage communications investments made in other programs to lower risk and cost and provide leveraging options for other strategic platforms such as the B–52 and RC–135. USSTRATCOM fully supports both programs, and urges that they continue to be fully funded to avoid any mission gaps.

26. Senator MCCASKILL. What would be the consequences of a delay in completing the communications upgrades on the B–2?

Admiral HANEY. Bombers are the most flexible and visible leg of the Triad. They provide key capabilities in support of U.S. deterrence and assurance commitments worldwide, and play an important role in conventional power projection. The B–2 Stealth Bomber plays a uniquely important role in U.S. conventional power projection and nuclear deterrence. Robust and survivable communications are essential to execute world-wide conventional and nuclear deterrence and assurance missions.

The B–2's communications modernization programs are mission-critical enablers for both nuclear and conventional missions. Previous efforts to modernize B–2 communications were delayed or cancelled due to funding and technical issues. Current efforts are fully supported, but further delays will create unacceptable mission limitations.

The B–2's Advanced Extremely High Frequency (AEHF) satellite communication (SATCOM) modernization will replace the bomber's legacy Ultra High Frequency

(UHF) SATCOM capability. The UHF capability is vulnerable to jamming and does not effectively support the B–2's stealth capabilities. Furthermore, the satellite constellation which supports UHF SATCOM is approaching end-of-life. A previous 'just-in-time' effort to add an AEHF capability to the B–2 was canceled in 2013 due to technical and cost issues. Those issues have been resolved and the current AEHF effort is fully funded with program start in fiscal year 2017. This program can also be leveraged to cost-effectively meet Extremely High Frequency requirements for other strategic platforms such as the B–52 and RC–135.

The B–2's Very Low Frequency (VLF) capability, known as Common VLF Receiver Increment 1 (CVR Inc 1), provides required receive only connectivity in support of nuclear command and control. It is fully funded and on schedule.

COMMANDER, U.S. NORTHERN COMMAND

27. Senator MCCASKILL. As we look at ways to improve the efficiency and effectiveness of the Department of Defense, it has been suggested that we should relook at the Unified Command Plan which draws the geographical boundaries for Combatant Commands. If U.S. Northern Command and U.S. Southern Command were combined into one command, would the Commander be able to execute the missions and requirements of both commands?

Admiral GORTNEY. From a span of control perspective, it would be extremely difficult for the Commander to execute the missions and requirements of both U.S. Northern Command and U.S. Southern Command if they were combined into one combatant command. Furthermore, I would be very concerned that this merger would dilute the Commander's focus on Homeland Defense, the Department's highest priority mission, as well as undermining the key Homeland and regional partnerships developed by U.S. Northern Command and U.S. Southern Command. In addition to the partnerships with Canada, Mexico, The Bahamas, 49 States, 2 territories, and the District of Columbia, a merger would add an additional 31 countries, 15 dependencies and areas of special sovereignty to a merged Commander's portfolio. I believe this expanded span of responsibility would seriously challenge a single Commander's ability to sustain and develop our partnerships, with whom we share responsibility for the defense of North America.

28. Senator MCCASKILL. What, if any, additional risks would the U.S. incur?

Admiral GORTNEY. I believe that by combining U.S. Northern Command and U.S. Southern Command, the U.S. would incur risk to our Homeland defense mission as well as to our Homeland and regional partnerships. One of the many lessons learned from the terrorist attacks of September 11, 2001 was the need for a single combatant command to be assigned the Homeland defense mission as its number one priority mission. U.S. Northern Command is responsible for defending all of the approaches to the US, including air, land and sea against threats, and we must coordinate with both of our North American neighbors who are part of our in-depth Homeland defense architecture. In addition, a merger would significantly undermine our ability to support civil authorities in responding to disasters and emergencies in the U.S. Homeland.

COMMANDER, U.S. SOUTHERN COMMAND

29. Senator MCCASKILL. As we look at ways to improve the efficiency and effectiveness of the Department of Defense, it has been suggested that we should relook at the Unified Command Plan which draws the geographical boundaries for Combatant Commands. If U.S. Southern Command and U.S. Northern Command were combined into one command, would the Commander be able to execute the missions and requirements of both commands?

Admiral TIDD. If NORTHCOM and SOUTHCOM were combined into one command, I believe we would inevitably sub-optimize both critical mission sets. NORTHCOM's Homeland Defense mission and SOUTHCOM's external focus of Theater Security Cooperation in our shared neighborhood of the Western Hemisphere are very distinct in nature. Unless we decide as a nation that one of those missions is no longer important, I believe we will continue to need two separate Commands to focus on each unique mission.

30. Senator MCCASKILL. What, if any, additional risks would the U.S. incur?

Admiral TIDD. If SOUTHCOM and NORTHCOM were combined, again, we run the risk of sub-optimizing both unique missions. I would defer to Admiral Gortney to address the specific risks that would be involved in a suboptimization of NORTHCOM. However, I can tell you that our neighborhood, Latin America and the Caribbean, already perceives that the U.S. is losing interest in the region due to

low prioritization of assets and resources. At the same time, extra-hemispheric actors such as Russia, China, and Iran are steadily increasing their engagements and investments in this region. Minimizing the strategic importance of this region by diluting the SOUTHCOM mission would only play into the current perception in the region and open the door to those external actors to gain influence in our near-abroad.

QUESTIONS SUBMITTED BY SENATOR RICHARD BLUMENTHAL

ILLICIT SUBSTANCES

31. Senator BLUMENTHAL. You noted during your testimony that USSOUTHCOM's ability to interdict flows of illicit substances is extremely limited. Can you please provide a list of resources—equipment, ships, aircraft—that you believe are necessary to more effectively intercept and interdict the flow of illicit substances?

Admiral TIDD. In order to meet the U.S. Government national goal to remove 40 percent of documented cocaine movement through the transit zone, USSOUTHCOM requires 21 vessels. Our current ideal breakdown of the 21 vessels includes 14 medium range ships (similar to the Littoral Combat Ship or future Offshore Patrol Cutter), 3 long range ships (like a Cruiser, Destroyer, or National Security Cutter), and 4 coastal patrol boats. The most useful vessels to USSOUTHCOM are medium and long range ships equipped with a flight deck that provides persistent offshore presence, capable of conducting Airborne Use of Force (AUF), with embarked law enforcement teams.

As you know, we also face significant shortfalls in the area of intelligence, surveillance, and reconnaissance (ISR). To have a better understanding of the environment and threats in our region, we require persistent airborne and maritime ISR assets with precise geo-location and identification capabilities. Because of the geography in this part of the world, we would also need ISR capabilities able to collect in triple-canopy, adverse weather, across air, ground, and sea.

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

TUESDAY, MARCH 15, 2016

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

POSTURE OF THE DEPARTMENT OF THE NAVY

The committee met, pursuant to notice, at 2:32 p.m. in Room SH–216, Hart Senate Office Building, Senator John McCain (chairman) presiding.

Committee members present: Senators McCain, Inhofe, Sessions, Wicker, Ayotte, Fischer, Ernst, Tillis, Sullivan, Reed, Nelson, McCaskill, Shaheen, Gillibrand, Blumenthal, Donnelly, Hirono, Kaine, and King.

OPENING STATEMENT OF SENATOR JOHN MCCAIN, CHAIRMAN

Chairman MCCAIN. Good afternoon.

The committee meets today to receive testimony on the plans and programs of the Department of the Navy for fiscal year 2017.

I want to thank each of our witnesses for their distinguished service to the Nation, as well as the sailors, marines, and civilians they lead who are serving around the world today.

Last month, the Director of National Intelligence provided this committee a candid and unsettling picture of the worldwide threats to our national security, which have steadily increased since dangerous reductions in defense spending were enacted in 2011.

The unwillingness of the administration and too many in Congress to chart a different course has forced our sailors and marines to try to do more with less. By any measure, today's fleet of 272 ships is too small to address critical security challenges. Even with recent shipbuilding increases, the Navy will not achieve its requirement of 308 ships until 2021, and there is no plan to meet the bipartisan National Defense Panel's recommendation for a fleet of 323 to 346 ships.

The last five carrier strike group deployments have exceeded 8 months, taking their toll on our ships, aircraft, and sailors. This has forced the Navy to accept carrier presence gaps in order to complete deferred maintenance.

Similarly, by the end of this fiscal year, the Marine Corps will be reduced to 182,000 marines, even as General Neller testified

last year that the optimal size for the force is 186,000. The Marines have a requirement for 38 amphibious ships, but they only have 30 in the fleet. Marine Corps aviation is in crisis. Many aircraft are down hard. Pilots are not flying, and nondeployed Marine aviation squadrons are short in the number of aircraft needed to train or respond in a crisis.

Budget cuts and force reductions, together with high operational tempo, have forced sacrifices of vital training and time at home with families, putting our All-Volunteer Force under considerable strain.

Given the obvious needs of our Navy and Marine Corps to restore readiness and modernize their ships, aircraft, and combat vehicles, the President should have requested a defense budget that reflects the scale and scope of the national security threats we face and the growing demands they impose on our sailors and marines. Instead, the President chose to request the lowest level of defense spending authorized by last year's budget agreement and submitted a defense budget that is actually less in real dollars than last year, despite the fact that operational requirements have grown.

Even with the relief of the Bipartisan Budget Act, insufficient funding has forced the Navy to propose inactivating seven guided missile cruisers for up to 10 years. I am particularly concerned about the Navy's proposal to cut a carrier air wing, which appears to ignore the versatility of our air wings to rely on overly optimistic projections for its yet unproven optimized fleet response plan and could reduce operational flexibility in a time of growing uncertainty.

The answer to our forces' readiness shortfalls is not the reduction of squadrons but the proper funding of flight hours, depot maintenance, and the procurement of new aircraft, many of which such as additional F–18's were not requested purely for budgetary reasons.

As we consider the future of the carrier air wing, I continue to believe the Nation needs an unmanned carrier-based penetrating strike aircraft. While I am frustrated with the slow pace of development towards this goal, I am hopeful the so-called MQ–25 Stingray will be an important step in this direction by facilitating the rapid development of unmanned carrier-based tanking and ISR [intelligence, reconnaissance, surveillance] capabilities.

The President's Budget includes significant funding requests for major Navy and Marine Corps acquisition programs, which require continued oversight by this committee to ensure these programs make the best use of limited taxpayer dollars.

Initial cost overruns more than doubled the cost of each littoral combat ship [LCS] and development costs now exceed $3 billion and counting. Meanwhile, key warfighting capabilities of the LCS, including mine countermeasures and anti-submarine warfare, have fallen years behind schedule and remain unproven.

Because of the long-running cost, schedule, and performance issues with this program, I support the Department's proposal to down-select to one variant no later than 2019 and reduce the inventory objective to 40 ships. I am encouraged to see the Navy has begun the process of identifying the LCS replacement, and I hope

we can transition to a more capable, small surface combatant expeditiously.

I am also pleased that after more than $2 billion in cost overruns for each of the first three *Ford*-class carriers, this budget request reflects cost reductions of nearly $700 million for these ships. I expect this to be just the start of cost reductions in this program. Given continued technological challenges and schedule delays, the Navy must take all steps necessary to control costs in this program.

I also look forward to reviewing the Navy's report on alternative carrier designs, which is due to this committee on April 1st, which I expect to provide alternatives to the sole source status quo and options to increase competition.

The *Ohio*-class replacement submarine is an equally important program which will carry about 70 percent of the Nation's deployed nuclear warheads. The cost of this program will be second only to the joint strike fighter. Make no mistake. The Nation and the Navy cannot afford—literally cannot afford—any margin for error or growth in cost of this program. We must get it right the first time with lessons learned from past acquisition experience, including accurate cost estimating, technology maturity, avoiding concurrent design, or development with production, off-ramps for high-risk systems, and meeting reliability targets for critical systems.

Similarly, given the importance of replacing our aging fleet of amphibious vehicles, the Marine Corps must learn the lessons of past failures, such as the expeditionary fighting vehicle, and deliver this needed capability on time and cost and up to expectations.

As the Navy and Marine Corps move forward with these significant acquisition programs, I would like to hear from our witnesses how they intend to implement the new acquisition authorities contained in last year's defense authorization bill to improve acquisition outcomes and save taxpayer dollars.

Finally, Admiral Richardson, almost 2 months ago, the government of Iran captured 10 Navy sailors and their vessels in a blatant violation of international law. Senior administration officials reacted as if nothing out of the ordinary occurred. Indeed, some even praised and thanked the Iranians. By failing to affirm and defend basic principles of international law, the administration has placed our Navy and Coast Guard vessels and the men and women who sail them at greater risk in the future. While I understand the Navy is continuing to investigate this matter, I request that you bring the committee up to date on the findings of the investigation and the welfare of the crew members who were detained.

I look forward to the testimony of our witnesses on these and many other important issues confronting our Navy and Marine Corps.

Senator Reed?

STATEMENT OF SENATOR JACK REED

Senator REED. Well, thank you very much, Mr. Chairman. Let me join you in welcoming Secretary Mabus and Admiral Richardson and General Neller. Thank you, gentlemen, for your service to the Nation.

This afternoon, we will discuss the Department of the Navy's fiscal year 2017 authorization request. We certainly are grateful for your service, and I want to especially welcome Admiral Richardson and General Neller. This is your first posture hearing. welcome aboard I think they say in the Navy.

You face a huge range of challenges as you strive to balance the need to support ongoing operations and sustain readiness with the need to modernize and keep the technological edge critical to our military's success.

Last year, the Department of the Navy was facing serious readiness problems caused by deferred maintenance, reduced steaming and flying hours, and canceled training and deployments. The continued emphasis on readiness in this year's budget will address some of the Navy's most serious readiness problems. I am interested in hearing the witnesses' views on this matter, which are absolutely critical.

All areas of our naval forces are maintaining an extremely high operational tempo. Demand is overwhelming for attack submarines, air and missile defense cruisers, destroyers and strike fighters. In addition, the Navy is now in its fourth year of operating with fewer than required 11 aircraft carriers. During the next decade, as a first priority, the Navy will need to buy a new class of strategic missile submarines to replace the *Ohio*-class submarines. I am interested in hearing how the Navy is managing current demands on its assets and how it plans to manage future modernization demands, particularly how it will use the National Sea-Based Deterrence Fund as we begin procurement funding of the *Ohio* replacement in fiscal year 2017.

General Neller, you have stated in your words recapitalization of our force is essential to our future readiness with investments in ground combat vehicles, aviation, command and control, and digitally interoperable protected networks. The Marine Corps continues to make modernization of ground vehicles a priority by developing the Amphibious Combat Vehicle [ACV] to replace the aging inventory of Amphibious Assault Vehicles [AAV], as well as the Joint Light Tactical Vehicle [JLTV] in which the Marine Corps is partnering with the Army.

Both programs awarded contracts last fall, but were subjected to protests. While the JLTV protest has been resolved, the Marine Corps is still awaiting a decision for the ACV. I would welcome an update from our witnesses on the status of these programs and if they believe there will be significant delays in fielding due to delays in the acquisition program.

The Department of the Navy budget has its usual number of significant programs, some of which have issues with their execution. However, I want to note specifically one program, and that is the procurement of the V–22 tilt rotor aircraft. The Navy budget would break the current multiyear procurement contract. When Congress authorizes a multiyear procurement contract, we are agreeing to authorize the administration to commit future Congresses to a specific procurement program. In return, I believe that there is a commitment by the administration that absent remarkable changes in the situation, the administration will live up to the contract and fu-

ture budget requests. I am very interested in hearing more about why the Navy proposes to break this contract.

The Defense Department's Defense Strategic Guidance, issued in January 2012, followed by the 2014 QDR [Quadrennial Defense Review], announced a renewed strategy for United States military orientation on the Asia-Pacific. Consistent with that strategy, the Defense Department has been working to realign United States military forces of South Korea and Okinawa and plans to position Navy and Marine Corps forces in Australia, Singapore, and possibly elsewhere in the region.

The Department has also begun implementing a plan to forward-deploy more ships, as shown by the Navy's rotational deployment of littoral combat ships to Singapore. I am interested in hearing how the Navy will ensure that the LCS deployments will not further delay operational testing of the LCS and the LCS mission modules which are both significantly behind schedule already.

Again, let me thank you for your service and for your dedication to the men and women of the Navy and the Marine Corps. I look forward to your testimony.

Chairman MCCAIN. Secretary Mabus, welcome.

STATEMENT OF HONORABLE RAYMOND E. MABUS, JR., SECRETARY OF THE NAVY

Mr. MABUS. Thank you, Mr. Chairman, Ranking Member Reed, members of the committee. Thank you for the opportunity to discuss the Department of the Navy.

As you pointed out, Mr. Chairman, this is the first budget testimony before this committee for the Chief of Naval Operations [CNO], Admiral Richardson, and the Commandant of the Marine Corps, General Neller. In the time since they took these positions, I have had the privilege of their frank, professional, and invaluable counsel. They are officers of the highest caliber who expertly lead our Navy and Marine Corps during ever-tightening fiscal constraints and an increasingly dynamic threat environment.

This is my eighth time and my last to appear before you at a budget hearing. For me, leading the Department of the Navy is the greatest honor of my life. I could not be more proud of our sailors, our marines, and our civilians.

I am also proud of the many steps we have taken and the changes we have made to ensure that the Navy and Marine Corps remain the greatest expeditionary fighting force the world has ever known.

First and foremost, we continue to provide presence. That unrivaled advantage on, above, beneath, and from the seas gives our leaders options in times of crisis, reassures our allies, deters our adversaries. There is no next best thing to being there. Maintaining that presence requires gray hulls on the horizon.

While there has been discussion about posture versus presence, the simple fact is that for the Navy and Marine Corps, our posture is presence. In every case, from high-end combat to a regular warfare to disaster relief, our naval assets get on station faster, we stay longer, we bring whatever we need with us, and since we operate from our ships, which are sovereign American territory, we can act without having to ask any other nation's permission.

Resourcing that presence depends on four fundamentals: people, our sailors and our marines; platforms, our ships and aircraft and systems; power, how we use energy to make us better warfighters; and partnerships, our relationship with international allies and most importantly with the American people.

When I took this post almost 7 years ago, we had an incredibly committed and capable force, but each of these four words staring with "P" was under pressure. Our people were under stress from high operational tempo and extended deployments. Our fleet was shrinking and too many of our platforms were costing too much. Our use of power was a vulnerability, and our partners were seeking reassurance of our sustained engagement. Now our people, platforms, power, and partnerships are stronger than they have been in many years, enabling us to provide that invaluable presence.

People. We have instituted sweeping changes in personnel policy. Promotions are based more on merit and less on tenure. Commanding officers are empowered to meritoriously promote more sailors and marines. We have made career paths more flexible. One example, thanks to Congress, is the Career and Admission Program, which has been greatly expanded.

We have also increased the professional development and educational opportunities to bring America's best ideas to the fleet by adding 30 graduate school slots through our Fleet Scholars Education Program and sending high-performing sailors on SECNAV [Secretary of the Navy] industry tours to great American companies like FedEx and Amazon where they learn private sector best practices that can be applied when they return.

We are absolutely committed from leadership to the deck plates on combating the crime of sexual assault and the tragedy of suicide.

We have also revamped physical fitness assessments, making them more realistically aligned with the jobs we do, and we have promoted healthier lifestyles through better nutrition and a culture of fitness.

All billets in both services are now open to women. Standards will absolutely not be lowered, but anyone who can meet the standards will be able to do the job. This will make us a more effective combat force.

We are trying to mitigate stress on sailors and marines and their families by making deployments more predictable, extending hours for child care, and creating collocation policies.

To tap into the innovative culture inherent in the Navy and Marine Corps, we established task force innovation, which takes good ideas from deck plate sailors and field marines, recognizes funds, and rapidly moves these good ideas fleet-wide.

On platforms, we have reversed the decline in ship count, and thanks to Congress and, in particular, to this committee, our Navy will reach, as you pointed out, Mr. Chairman, 300 ships by 2019 and our assessed need of 308 ships by 2021.

In the 7 years before I took office, the Navy contracted for 41 ships. In my 7 years, we have contracted for 84, and we have done so while increasing aircraft purchases by 35 percent, all with a smaller top line. Practices like firm fixed price contracts, multiyear

buys, stable requirements have driven down costs on virtually every class of ship, and we are also in the process of recapitalizing nearly every naval aviation program.

We have expanded unmanned systems on, under, and above the sea and put increased focus on them by establishing a deputy assistant secretary for unmanned and an office of unmanned warfare systems on the CNO [Chief of Naval Operations] staff, known as N–99, designed specifically to coordinate all the unmanned programs.

We are also implementing advanced energy technologies like electromagnetic railguns and laser weapons.

Power. To increase our lethality and operational flexibility, I set goals of having 50 percent of sea and shore-based energy derived from alternative sources by 2020, competitive with the price of conventional power. We met that goal ashore by the end of last year.

Energy efficiency has also been greatly increased on our bases and at sea. Since 2009, both the Navy and Marine Corps have achieved large drops in oil consumption.

Partnerships. I have traveled nearly 1.2 million miles to 144 different countries and territories, visiting our sailors and marines, our allies and our partners. 12 of my trips have been to Afghanistan where I visited every Marine Corps forward-operating base in Helmand to be with our forward-deployed men and women and have actively engaged with our allies and friends around the world to build and maintain a network of navies with whom we train, operate, and trust.

We have worked in close partnership with Congress to fulfill the constitutional mandate to provide for and maintain a navy. As President George Washington said, it follows then as night succeeds the day that without a decisive naval force, we can do nothing definitive, and with it, everything honorable and glorious.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Mabus follows:]

PREPARED STATEMENT BY THE HONORABLE RAY MABUS

Chairman McCain and Ranking Member Reed, members of the Committee, thank you for the opportunity to discuss the readiness and posture of the Department of the Navy. With Chief of Naval Operations John Richardson and Commandant of the Marine Corps Bob Neller, I have the great privilege of representing the sailors and marines who serve our nation around the world, the civilians who support them and all of their families.

This is the first testimony before this committee for Admiral Richardson and General Neller in these positions. In the time since they took these critical posts, I have had the privilege of their frank, professional and invaluable counsel. They are officers of the highest caliber who expertly lead our Navy and Marine Corps during ever-tightening fiscal constraints and an increasingly dynamic threat environment.

This is my eighth time, and my last, to appear before you. For me, leading the Department of the Navy is the greatest honor of my life. I could not be more proud of our sailors, marines, and civilians. I'm also proud of the many steps we've taken and changes we've made to ensure that the Navy and Marine Corps remain as they have been for over 240 years as the greatest expeditionary fighting force the world has ever known

This statement, together with those provided by Admiral Richardson and General Neller, presents to you and to the American people an overview of the Department of the Navy and highlights our priorities as we move forward with the fiscal year 2017 (FY17) budget process. As the Secretary of the Navy, I am responsible for recruiting, training, and equipping the sailors, marines, and civilians who spend every day working to defend the American people and our national interests.

Every year, as we review our current posture, we must ask ourselves, as a Department, as a military, and as a nation, how to balance our national security demands. We face an increasing array of threats, conflicts and challenges around the globe, even as our fiscal and budgetary situation continues to strain resources. Consistently, when a crisis occurs, the leaders of this country want immediate options, so they ask for the Navy and Marine Corps, for our carrier strike groups and our amphibious ready groups, for our sailors and marines, for our presence. With 90 percent of global trade traveling by sea, 95 percent of all voice and data being transferred under the ocean and more than 80 percent of the world's population living within 60 miles of the sea, there is no question that now, more than ever, we are living in a maritime century.

THE VALUE OF PRESENCE

What our Navy and Marine Corps uniquely provide is presence—around the globe, around the clock—ensuring stability, deterring adversaries, and providing the nation's leaders with options in times of crisis. We are "America's away team" because sailors and marines, equally in times of peace and war, are deployed around the world to be not just in the right place at the right time but in the right place all the time. In every case, from high-end combat to irregular warfare to disaster relief, our naval assets get on station faster, we stay longer, we bring whatever we need with us and, since we operate from our ships, which are sovereign American territory, we can act without having to ask any other nation's permission. While there has been discussion about posture versus presence, the simple fact is that for the Navy and Marine Corps, our posture is presence.

For more than seven decades, Navy and Marine Corps presence has kept international sea lanes open around the world. For the first time in history, one nation—America—is protecting trade and commerce not just for ourselves and our allies but for everyone. Today, $9 trillion in goods are traded by sea annually, supporting 40 million jobs in the U.S. alone and benefiting nearly every consumer on earth. These statistics make it clear that the health of the world's economy depends in large part on the United States Navy and Marine Corps.

The security and stability of the international system of trade and finance is tied irrevocably to the free movement of goods and data across, above and under the sea, and is more than just a military concern. It impacts every American in the prices we pay for goods and services and the very availability of those goods and services. While the Navy's activities often take place far away and out of sight of most citizens, the impact of our global naval presence isn't a theoretical construct; its effects are palpable throughout American life.

The economic benefit is just one that comes from our sailors and marines doing their job across the globe. That ubiquitous presence reassures our allies and deters our adversaries. If conflict comes, we will fight and win. Our presence is an unrivaled advantage that we provide our nation. There is no "next best thing" to being there. Maintaining that presence requires gray hulls on the horizon.

With each year's budget decisions, we determine what the future Navy and Marine Corps will look like. Just as the Fleet and Corps we have today are the result of decisions made a decade ago, so will tomorrow's Fleet and Corps be a result of the decisions we make today. For this reason, we have to balance the needs of our Navy and Marine Corps today with those of our nation tomorrow.

Our combatant commanders understand the critical expeditionary capability the Navy and Marine Corps team brings to the fight. Whether we are conducting security cooperation around the world, deploying Marines in response to a humanitarian crisis or launching strikes from our carriers, it is clear Navy and Marine Corps presence provides great value to our decision makers and our nation. The emergence of a diverse set of challenges, including Russia, North Korea, China, Iran and ISIS demands continued emphasis on our Naval and expeditionary forces. We absolutely cannot afford to forfeit the capabilities of our future maritime power and superiority.

AROUND THE GLOBE, AROUND THE CLOCK

You only need to look around the world to see our Navy and Marine Corps are first on-station and demonstrate an instrumental and prominent role in our national security strategy.

For the first 54 days of the air campaign against Islamic State militants in Iraq and Syria, the only strikes came from Navy F/A–18 Hornets off USS *George H.W. Bush* in the Arabian Gulf because land-based fighters could not participate until host nations approved.

During a 10-month deployment ending in June 2015, USS *Carl Vinson* Strike Group conducted 12,300 sorties, including 2,383 combat missions against Islamic State of Iraq and Syria (ISIS).

The operational tempo of Naval Special Operations Forces (NAVSOF) remains high, as they continue operations in the Middle East, Horn of Africa, and Central Asia. NAVSOF is manning the Combined Joint Special Operations Task Force-Iraq and deploying forces to Afghanistan.

In March 2015, USS *Gary* intercepted a suspected narcotics-trafficking vessel off the coast of Central America and seized 5,200 kilograms of cocaine.

In July 2015, USS *Porter* entered the Black Sea to reassure NATO allies of our commitment to regional stability by conducting naval exercises with ships from 30 different nations including Spain, Portugal, France, Turkey, Greece and Bulgaria.

Last fall, as a visible demonstration of our commitment to maintaining freedom of navigation for everyone, USS *Lassen* patrolled the Spratly Islands and nearby artificial reefs in the South China Sea. USS *Curtis Wilbur* conducted similar freedom of navigation operations by patrolling near the disputed Triton Island earlier this year.

When tensions rose in Yemen last summer, marines embarked with sailors onboard Navy craft to shore up security and surveillance in surrounding waters in preparation for a potential crisis.

The 31st Marine Expeditionary Unit (MEU) deployed to Saipan to provide Defense Support to Civil Authorities after Typhoon *Soudelor* killed 30 people and displaced 150,000 others in the Commonwealth of the Northern Marianas.

Within 40 hours of President Obama's order, a Special Purpose Marine Air-Ground Task Force deployed marines, sailors, aircraft and equipment to Liberia to respond to the Ebola crisis, providing critical airlift and surgical capability as part of U.S disaster relief efforts.

Maritime presence has been a tenet of our democracy since its inception; the founding fathers wrote in the Constitution that Congress is authorized to "raise" an Army when needed, but mandated it "maintain" a Navy. Maintaining our great Navy and Marine Corps is what assures Americans at home, our friends and allies, as well as our adversaries that we are ready to respond when called upon to any crisis, anywhere.

Early on in my tenure as Secretary, I outlined four principles that enable our Navy and Marine Corps' to sustain their global presence. They are People, Platforms, Power and Partnerships. Those have been, and continue to be, the key factors in assuring the capability, capacity and success of our naval services, which is why they have been, and will remain, my top priorities.

PEOPLE—SUSTAINING THE WORLD'S MOST FORMIDABLE EXPEDITIONARY FIGHTING FORCE

The sailors, marines, and civilians serving today are the best force we've ever had. But for more than a decade we asked a lot of everyone, because unlike other services, we deploy equally in peacetime and wartime. There are no permanent homecomings for sailors and marines. Despite all we've asked, they have performed magnificently. We've taken steps to maintain the health and resilience of our force across every facet of the Department. We have addressed issues like operational readiness levels, personal well-being for our people and their families, creating more options for career flexibility, opening new slots for graduate education, improving our advancement process, and promoting equality of opportunity. We have made the Navy and Marine Corps stronger, focused not only on retaining the incredible expertise and professionalism that resides within these two services, but also that draws from the broadest talent pool America has to offer.

Our sailors and marines make Navy and Marine Corps presence possible by operating the platforms, harnessing the power, and building the partnerships necessary to fulfill our national security strategy. Seven years ago when I took office, we had a committed and capable force, but our people, and our platforms, were under stress from high operational tempo and extended deployments.

To return stability to our sailors, marines, their families, and to our maintenance cycles, one of our first priorities was to develop and institute the Optimized Fleet Response Plan (OFRP). This is a program that the Navy is using to schedule and plan our deployments and the maintenance of our platforms. Entering its third year since implementation, OFRP is beginning to fully demonstrate its advantages to the Fleet. USS *Eisenhower* Carrier Strike Group and USS *Makin Island* Expeditionary Strike Group will be first to deploy later this year entirely under the OFRP. Our men and women know there is no way to completely eliminate the unexpected, because events around the world can and do take on a life of their own. However, in-

creasing the predictability of deployments will help improve resilience in our sailors and marines and their families and also has the added benefit of helping us properly support our maintenance requirements and readiness posture.

Under the OFRP, we continue to meet all operational commitments, and sailors, marines, and their families are giving us positive feedback on this and other initiatives like increases to Hardship Duty Pay—Tempo (HDP–T), a pro-rated additional pay that kicks in when a deployment extends beyond more than 220 consecutive days, and Career Sea Pay, paid to those who have spent a total of three years at sea and Career Sea Pay-Premium for those E–6 and above who have spent a total of eight years in sea-going assignments. These incentives reward those who take the hard and challenging billets at sea, which form the backbone of our operations.

Taking care of our people is about more than just operational stability. Through our 21st Century Sailor and Marine Initiative, implemented in 2012, we have provided a holistic approach to assuring we have the healthiest, fittest, and most resilient force in the world. We have focused on helping our sailors and marines maximize their personal and professional readiness by assisting them and their families with the mental, physical and emotional challenges of military service. Eliminating the stovepipes that existed between many of the programs designed to support our people allows us to better address issues like suicide and sexual assault in a comprehensive way that protects our sailors and marines and makes them stronger.

In suicide prevention, we are continuing to accelerate our efforts in 2016 by becoming more assertive on early recognition, education and open dialogue to promote climates supportive of psychological health. We are expanding our Ask, Care, Treat (ACT) initiative that focuses on training, counseling, and intervention. To date, over 40,000 sailors have received training via Navy Operational Stress Control (OSC) courses. Our partnerships with the Navy and Marine Corps Public Health Center, the Defense Suicide Prevention Office, and the Bureau of Navy Medicine and Surgery have maximized our public health approach to suicide prevention. Furthermore, we are adding to the nearly 800 Suicide Prevention Coordinators (SPC) trained in 2015, enhancing local suicide prevention efforts at the deckplate by having a qualified program advocate at nearly every command.

Sexual assault is a crime with devastating impacts to the Navy and Marine Corps. Every sailor and marine deserves a working environment respectful of all, completely intolerant of sexual assault, and supported by programs of prevention, advocacy, and accountability. We've implemented many actions to attack this insidious threat. While there is still work to be done, we have instituted an increasingly effective Sexual Assault Prevention and Response program and Victim's Legal Counsel, which together encourage increased reporting and provide critical support to those who come forward, and I am the only Service Secretary who has my Sexual Assault Prevention Response Officer report directly to me. We are also taking steps to prevent and respond to perceptions of retaliation or ostracism on the part of the courageous people who report these crimes– whether by the chain of command or peers.

Our Sexual Assault Prevention and Response programs are many and varied. Through our InterACT Bystander intervention training we've educated more than 52,000 sailors and marines at 220 training events on how to stop a potentially dangerous scenario from leading to an assault. Our Navy Chaplain Corps has teamed with clinicians to establish CREDO, a 48-hour retreat event with workshops focused on teamwork, community building, personal resiliency and reconciliation. In-person education is augmented by numerous interactive training tools available to all sailors and marines ashore and afloat. But no matter how much we've done and continue to do, we will not consider our mission a success until this crime is eliminated.

Protecting our Department from instability and destructive and illegal behavior is important, but equally important is promoting healthy lifestyles that result in a more capable and ready fighting force. Our high operational tempo demands a year-round culture of fitness. We have completely revamped the Physical Fitness Assessment to focus on producing warfighters, capable of accomplishing any mission any time, a measure that not only improves readiness but reduces overall medical costs. To set sailors and marines up for success, we opened a 24-hour a day, seven-day a week gym on every base worldwide and we began issuing the Navy Fitness Suit, a uniform item the marines already have. sailors earn Fitness Suit patches for outstanding performance, and those who maintain that level of performance over three cycles receive the "Outstanding Fitness Award."

To complement physical training with well-balanced diets, we've increased efforts to provide nutritious food options to sailors and marines at sea and ashore. In 2012, the Marines introduced the "Fueled to Fight" nutrition program, designed to promote a healthy lifestyle by providing more nutritious food choices. At base dining facilities, a labeling system identifies healthier options and enhances the Marine's

ability to make a healthy choice. The Navy also created their version, called, "Fuel to Fight," launched by the SEALS at Naval Amphibious Base Little Creek, which increases the availability of lean-proteins, vegetables, and complex carbohydrates in our galleys. We are further developing the concept at one sea-based and one shore-based unit this year and will implement it Fleet-wide in 2017.

Part of overall health is emotional health. In order for sailors and marines to remain focused on the mission, they should not be distracted by concerns about their home life. The Department of the Navy takes very seriously its commitment to support our Navy and Marine Corps families, and we have taken actions to make service more family friendly. We established 24/7 Child Care Development Centers at three Fleet concentration areas and increased access to childcare by a total of four hours, two hours on either side of the previously existing timeframe, at all locations.

In July of last year, I tripled paid maternity leave from 6 to 18 weeks, a period subsequently reduced to 12 weeks by the Secretary of Defense. Meaningful maternity leave when it matters most is one of the best ways that we can support the women who serve our county. This flexibility is an investment in our people and our Services, and a safeguard against losing skilled servicemembers. In our line communities, for example, we were losing about twice as many female servicemembers as male, most leaving between 7–12 years of service. We believe extending maternity leave will save money and increase readiness in the Department of the Navy by keeping people in.

Under a Congressional authorization, we piloted the Career Intermission Program (CIP) beginning in 2009. CIP allows a sailor or marine to take up to three years off, with a two-year payback for each year taken. When they return they compete against people who have been on active duty the same amount of time, as opposed to those from their previously assigned year-group. Career flexibility does not come at the cost of advancement potential. Our early participants have successfully rejoined the Fleet and, again due to Congressional action, we are expanding this program to help retain talented sailors and marines.

While we have taken steps to provide additional services and career flexibility so sailors and marines can address their needs personal needs, we have also aggressively enhanced professional development opportunities to strengthen our All-Volunteer Force. In a world increasingly dependent on inter-service, inter-agency, and international cooperation, that development takes place over the entire span of one's career. To broaden background diversity in our officer corps, we re-opened NROTC units at Harvard, Yale, Columbia and Princeton after a 40-year hiatus.

We also established the Fleet Scholars Education Program, adding 30 new graduate school positions allocated by warfighting commanders to eligible officers. Our first participants are now studying at Harvard, Dartmouth, and Yale.

Outside the classroom, we recognize the value that private sector ingenuity adds to American innovation, so we have also sent officers to work at places like FedEx and Amazon as part of SECNAV Industry Tours. Those who participate in these programs are our very best, and, in return for their experience, we expect them to bring their knowledge back to the Fleet and to continue to serve under the requirement that for every month spent away, a sailor or marine owes three months back.

We want people to take advantage of these and other opportunities, and we want them to commit to a career beyond any prescribed service obligation. That means creating an advancement system based primarily on merit, not tenure. In the Navy, we removed arbitrary "zone stamps" from officer promotion boards this year which can unnecessarily create bias. Additionally, for enlisted, we increased the number of advancement opportunities available to Commanding Officers to spot promote their best and brightest sailors via the Meritorious Advancement Program. Next year, we expect those numbers to grow even further.

In the Marine Corps we are revamping our manpower models to develop the force and address gaps in our Non-commissioned Officer ranks. Sixty percent of Marines are on their first tour and 40 percent are E–3 and below. We've implemented the Squad Leader Development Program to mature and further professionalize the force. This Program screens small unit infantry Marines, selects candidates based on performance and provides them with opportunities for education, qualification and assignment.

After returning predictability to the Navy and Marine Corps and creating an environment that supports families and promotes professional development, I took actions to make a career in the Department attractive and viable to the broadest spectrum of American talent. We now actively cultivate a force representative of the nation it defends. Doing so maximizes our combat effectiveness, because a diverse force is a stronger force.

This year, twenty-seven percent of the freshman class at the Naval Academy Class is comprised of women, more than a one-third increase from the summer of

2009 when I first took office. For the first time in American history, all billets in the Navy and Marine Corps will be open to every member of this year's graduating class, and to all others, officers and enlisted, throughout the Fleet.

I started integrating women into previously closed jobs shortly after taking office by opening up submarines and the coastal riverines to women. Later, in 2013, Secretary Panetta and Chairman Dempsey decided that the default position would be to open all military positions to women or seek an exemption to the policy. When weighing this decision, I took a methodical and comprehensive approach. Ultimately, I decided that denying any individual who meets an established standard the opportunity to serve because of their gender not only goes against everything we value as Americans, but it will most certainly diminish our combat effectiveness. We have already proven that is the case with respect to things like the color of someone's skin or who they love.

While we celebrate diversity in all of our people, we are uniform in purpose as part of an organization that prioritizes service over self. Rather than highlighting differences in our ranks, we have incorporated everyone as full-participants by moving, with some few exceptions, to common uniforms in both the Navy and the Marine Corps so that our forces have a common appearance. Now and in the future, we will present ourselves not as male and female sailors and marines, but as United States sailors and marines.

In the Reserves, during fiscal year 2015 we mobilized 2,700 individual Reserve sailors and marines to support operations worldwide. This allows us to focus our active component on filling critical sea billets to help ensure Fleet wholeness and readiness. This year, we were reminded of the sacrifices our Reserves make with the attack at Navy Operational Support Center (NOSC) Chattanooga that took the lives of five of our sailors and marines. At home, we have taken steps to provide force protection against these kinds of terrorist acts at off-installation NOSCs, and as of December 2015, 70 of 71 off-installation NOSCs now have armed Selected Reservists. More than 150 NOSC staff personnel have graduated the Navy's Security Reaction Force Basic (SRF–B) course in support of the Navy Reserve Force Protection mission. For Marine Corps reserve centers, 146 of 161 locations have armed duty personnel, and the remaining 15 sites are in the process of training personnel to be armed. Abroad, our Reserve sailors and marines are deployed globally, and we will continue to maintain a Reserve that is ready, relevant, and responsive to the nation's needs.

The Department's civilian workforce supports our uniformed force and is critical to the success of our missions. Our civilian employees have endured multi-year pay freezes, a hiring freeze, furloughs and continued limits on performance awards that impacted morale. Results of a Federal Employee Viewpoint Survey indicated that, while our civilians appreciated the role they play in our mission, they felt recognition and training were lacking. Where possible, through such efforts as Operation Hiring Solutions, the Department has mitigated the impacts to Fleet readiness and operations and to increase civilian employee job satisfaction. Our efforts have produced tangible results, demonstrated by increased civilian retention rates over the last two consecutive years.

This patriotic workforce is the foundation of how the Department of the Navy operates. In order to ensure we have the most capable people, in the right positions, we run a number of leadership development programs. Annually we select participants for senior leader, executive leader, and developing leader programs to provide education and training that will help our people tackle the issues we face now and in the future.

PLATFORMS—GROWING OUR FLEET DESPITE SHRINKING BUDGETS

To provide the presence the American people and our nation's leaders expect and have come to rely on, our sailors and marines need the right number and composition of ships, aircraft, weapons, vehicles, and equipment to execute the missions mandated by our National Security Strategy. That means we must have a properly sized Fleet. Quantity has a quality all its own.

When I first took office, I committed to growing the Fleet to meet our validated requirement and strengthen the acquisition process by employing stricter management and increased competition. In the seven fiscal years from 9/11/2001 to 2009, our Fleet declined from 316 to 278 ships, and during that period, the Navy contracted for only 41 ships, not enough to keep our Fleet from declining nor keep our shipyards open and healthy. In the seven fiscal years following 2009, we will have contracted for 84 ships. We will have done so while increasing aircraft purchases by 35 percent, despite decreasing defense budgets.

SHIPBUILDING

Navy shipbuilding is an essential part of our country's larger shipbuilding and repair industry, which provides more than 400,000 jobs and contributes more than $37 billion to America's gross domestic product. Shipbuilding enhances and strengthens economic security as well as national security. The work we have done, and must continue to do, will reinforce the importance of maintaining a partnership with the industrial base, as well as keep our shipbuilding industry strong and ready to support the national security needs of our Navy and our country.

Across our shipbuilding portfolio, we have employed direct, impactful actions including increased competition within and across product lines, using block buys and multi-year procurements when products are mature; ensuring designs are stable before entering into production; pursuing cross-program common-equipment buys; and achieving affordability through hard-but-fair bargaining. This would not have been possible without Congressional approval on items like multi-year procurements.

Stability and predictability are critical to the health and sustainment of the industrial base that builds our Fleet. Changes in ship procurement plans are significant because of the long lead time, specialized skills, and extent of integration needed to build military ships. The skills required to build ships are perishable, and, in the past, we have lost talent in this critical industry when plans have changed. Each ship is a significant fraction of not only the Navy's shipbuilding budget but also industry's workload and regional employment. Consequently, the timing of ship procurements is a critical matter to the health of American shipbuilding industries, and has a two-to-three times economic multiplier at the local, regional and national levels.

The Navy will continue to consider and, when appropriate, use innovative acquisition strategies that assure ship construction workload and sustain the vendor base while imposing cost competition. We will continue to invest in design for affordability, modularity and open systems architectures while incentivizing optimal build plans and shipyard facility improvements and supporting shipbuilding capability preservation agreements. These initiatives support affordability, minimize life-cycle costs, improve and ensure quality products, facilitate effective and efficient processes, and promote competition—which all support Department priorities.

Our efforts to maintain and affordably procure our Fleet's ships and submarines have continued through this past year. The Department has established a steady state *Ford*-class procurement plan designed to deliver each new ship in close alignment with the *Nimitz*-class ship it replaces. CVN 78 cost performance has remained stable since 2011 and this lead ship will deliver under the Congressional cost cap. The fiscal year 2016 National Defense Authorization Act (NDAA) reduced this cost cap for follow-on ships in the CVN 78 class by $100 million. Stability in requirements, design, schedule, and budget, is essential to controlling and improving CVN 79 cost, and therefore is of highest priority for the program. In transitioning from first-of-class to follow-on ships, the Navy has imposed strict configuration and cost controls to ensure CVN 79 is delivered below the cost cap. CVN 80 planning and construction will continue to use class lessons learned to achieve cost and risk reduction. The CVN 80 strategy seeks to improve on CVN 79 efforts to schedule as much work as possible in the earliest phases of construction, where work is both predictable and more cost efficient.

In our attack submarine program, we awarded the largest contract in Navy history, $18 billion, to build 10 *Virginia*-class submarines. Because Congress authorized a multi-year contract for these 10 boats, giving our shipyards stability and allowing them to order materials in economic quantities, we were able to save the taxpayer more than $2 billion and effectively procured 10 boats for the price of nine.

We are continuing procurement of two *Virginia*-class submarines per year under the Block IV 10-ship contract which runs through fiscal year 2018. We will also continue to develop the Virginia Payload Module (VPM), which is planned for introduction in fiscal year 2019, as part of the next *Virginia*-class multiyear procurement (Block V).

The *Arleigh Burke*-class (DDG 51) program is one of the Navy's most successful shipbuilding programs—62 of these ships are currently operating in the Fleet. We are in the fourth year of a multi-year procurement, and thanks to the work at shipyards in Mississippi and Maine and our acquisition team, the DDG 51 competitive multiyear contract is saving more than $2 billion. The two *Arleigh Burke*-class destroyers requested in fiscal year 2017, which will complete the current multiyear contracts, will provide significant upgrades to integrated air and missile defense and additional ballistic missile defense capability (Flight III) by incorporation of the Air and Missile Defense Radar.

With our Littoral Combat Ships (LCS), the average ship construction cost, under the current block buy contracts, has decreased by nearly 50 percent in comparison to LCS hulls contracted prior to 2009. We now have six ships of this class delivered, 18 currently on contract, and two additional ships to award this fiscal year. We are currently upgrading the design, which will significantly increase LCS lethality and survivability, to be introduced no later than fiscal year 2019, and potentially as early as fiscal year 2018. Because of these ships' enhanced counter-surface and counter-submarine capabilities, contributing to their role in Battle Group operations, we are re-designating these future ships as Frigates.

Our budget request also includes incremental funding for the next big deck amphibious assault ship, LHA 8. We are in the midst of an innovative solicitation which solicits bids for LHA 8, the replacement Fleet oiler T–AO(X), and early design efforts for the replacement for the LSD 41/49 class LX(R). These bids which uniquely support both stability and competition within the amphibious and auxiliary sectors of the industrial base, will be awarded this fiscal year

Ohio Replacement (OR) remains our top priority program. Prior modernization programs, such as our first strategic deterrence procurement, "41 for Freedom," were accompanied by topline increases. The Navy greatly appreciates Congressional support in overcoming the challenges posed by funding the OR Program.

The fiscal realities facing the Navy make it imperative that we modernize and extend the service lives of our in-service ships to meet the Navy's Force Structure Assessment requirements. An important element of mitigation is the extension and modernization of our Arleigh Burke class destroyers and Ticonderoga class cruisers (CGs).

The fiscal year 2017 President's Budget includes funding for the modernization of two destroyers to sustain combat effectiveness, ensure mission relevancy and to achieve the full expected service lives of the AEGIS Fleet. The destroyer modernization program includes Hull, Mechanical, and Electrical (HM&E) upgrades as well as combat systems improvements with upgraded AEGIS weapons systems. Advanced Capability Build (ACB) 12 to include open architecture computing environment, BMD capability, installation of the Evolved Sea Sparrow Missile (ESSM), integration of the SM–6 missile, and improved air dominance with processing upgrades and Naval Integrated Fire Control-Counter Air capability. This renovation reduces total ownership costs and expands mission capability for current and future combat capabilities.

Cruiser modernization ensures long-term capability and capacity for purpose-built Air Defense Commander (ADC) platforms. Of our 22 total cruisers, 11 recently modernized CGs will perform the ADC function for deploying Carrier Strike Groups while the Navy modernizes our other 11 ships. As these are completed, they will replace the first 11 on a one-for-one basis as each older ship reaches the end of its service life (35 years) starting in fiscal year 2020. Our modernization schedule commenced in fiscal year 2015 on a 2–4–6 schedule in accordance with Congressional direction: two cruisers per year for a long-term phase modernization, for a period no longer than four years, and no greater than six ships in modernization at any given time.

The Budget supports CG Modernization and proposes a plan that will save $3 billion over the FYDP by inducting the remaining cruisers into modernization following their current planned operational deployments. This differs from the current plan in that we would put a total of four CGs in phased modernization in fiscal year 2017. We understand that this request does not align with previous Congressional direction, but feel it is the best way to honor today's operational demands as we prepare for future strategic requirements.

AVIATION

With the support of Congress, we continue to strengthen our Naval Aviation force. We are in the process of re-capitalizing every major aviation platform in the Navy and Marine Corps inventory. The MV–22B has replaced the CH–46E/CH–53D, and we are in the process of replacing all other Navy and Marine Corps aircraft. We also continue to focus on unmanned aviation. We are investing in the MQ–4C Triton, MQ–8C Fire Scout, RQ–21 Blackjack, and RQ–7B Shadow plus initiating efforts to provide carrier-based unmanned aviation capability with the RAQ–25 Stingray.

Our investments focus on developing and integrating capabilities by using a family of systems approach, when viable, to maintain superiority against rapidly evolving threats. Using current and future platforms, weapons, networks and technologies, we will ensure Naval Aviation relevance and dominance in the future. For legacy weapons systems, we are addressing aviation readiness by investing in operations and support accounts to mitigate training and platform readiness issues. Our

procurement of new aircraft and synchronization of readiness enablers will improve our ability to project power over and from the sea.

The Strike Fighter inventory should be viewed in two separate and distinct phases. The near term challenge is managing a Department of Navy Tactical Aviation (TACAIR) force that has been reduced in capacity through a combination of flying many more flight hours than planned, pressurized sustainment and enabler accounts, legacy F/A–18A–D Hornet depot throughput falling short of the required output due to sequestration and other factors, and the impact of delays to completing development of the Joint Strike Fighter program. As a result of aggressive efforts instituted in 2014 across the Department to improve depot throughput and return more aircraft back to service, fiscal year 2015 depot throughput improved by 44 percent as compared to fiscal year 2014, returning to pre-sequestration levels of throughput. TACAIR aviation depots are expected to continue to improve productivity through 2017, and fully recover the backlog of F/A–18A–D aircraft in 2019 at which time the focus will shift toward F/A–18E/F service life extension. In the far term, the Strike Fighter inventory is predominantly affected by the rate at which we can procure new TACAIR aircraft. The fiscal year 2017 budget request increases both the F/A–18E/F and F–35 strike fighter aircraft in order to mitigate near-term and far-term risks to our strike fighter inventory in the most affordable, effective manner possible.

Critical to power projection from the sea, the E–2D Advanced Hawkeye, our new and upgraded airborne early-warning aircraft, completed Fleet integration and deployed with USS *Roosevelt* (CVN 71) Carrier Strike Group. We are continuing Full Rate Production under a multi-year contract and Fleet transition is underway. We expect to integrate the advanced capabilities with Forward Deployed Naval Forces (FDNF) by 2017. We continue to recapitalize the P–3C Orion with P–8As, and are on-schedule to complete the purchase within the FYDP to bring a total of 109 P–8As to the Fleet. Our P–8s will continue to undergo incremental improvements.

Finally, we expect to complete EA–18G Growler Fleet transition in fiscal year 2016. As the DOD's premier tactical Airborne Electronic Attack / Electronic Warfare aircraft, the Growler is crucial to power projection ashore in a saturated electronic warfare environment. With Congress' addition of seven EA–18Gs in fiscal year 2016, we will have 160 of these aircraft in 15 squadrons to support the Navy requirement. With the retirement of the Marine Corps' last EA–6B Prowlers in 2019, these highly capable aircraft take over the nation's airborne electronic attack mission.

Our rotary wing and assault support communities are in the midst of large-scale recapitalization. In the vertical lift community, multi-year production contracts for the MV–22 continue. We have taken advantage of joint service commonality in the V–22 to fill a crucial enabler in the Carrier On-board Delivery mission. In the Marine Corps, procurement of the AH–1Z continues to deliver combat proven-capabilities. Finally, with its first flight last fall, the CH–53K King Stallion is poised to bring significant improvements in our heavy lift capabilities.

UNMANNED SYSTEMS

Currently, our warfare communities—air, sea, undersea and ground—are all doing superb work in unmanned systems which are critical to our ability to be present. They increase the combat effectiveness of our deployed force while reducing the risk to our sailors and marines, allowing us to conduct missions that last longer, go farther, and take us beyond the physical limits of pilots and crews. Launching and recovering unmanned aircraft from the rolling decks of aircraft carriers, launching unmanned rotary-wing patrols from our small surface combatants, and deploying unmanned underwater vehicles globally are vital elements both now and in the future for maritime presence and naval warfare. We have enhanced our focus on unmanned systems and prioritized efforts under purposeful leadership at the level of the Deputy Assistant Secretary of the Navy for Unmanned Systems and the new office of Unmanned Warfare Systems of the staff of the Chief of Naval Operations, also known as N99.

We are moving ahead with a number of unmanned programs in the effort to rapidly integrate new capability into the fleet. The MQ–8B Fire Scout began regular deployments in 2014. When USS *Fort Worth* deployed to Singapore recently, the ship took a mixed aviation detachment of a manned MH–60R helicopter and MQ–8B Unmanned Aerial Vehicle's (UAV). This kind of hybrid employment, pairing our manned and unmanned systems to take advantage of the strengths of each, will be a hallmark of our future approach to unmanned systems. The first operational variant of the larger and more capable next generation Fire Scout, the MQ–8C, recently completed developmental testing and a successful operational assessment. This air-

craft is scheduled to be deployable by the end of 2017 and will bring double the endurance and double the payload of the older versions.

The MQ–4C Triton is a key component of the Navy Maritime Patrol Reconnaissance Force. Its persistent sensor dwell capability, combined with networked sensors, will enable it to effectively meet ISR requirements in support of the Navy Maritime Strategy. The MQ–4C Triton will establish five globally-distributed, persistent maritime ISR orbits beginning in fiscal year 2018 as part of the Navy's Maritime ISR transition plan. Currently, MQ–4C Triton test vehicles have completed 53 total flights and will continue sensor flight testing this spring.

In 2015, the Office of the Secretary of Defense conducted a comprehensive Strategic Portfolio Review (SPR) of DOD ISR programs. The results of the SPR, and a subsequent ISR portfolio review, as reflected in our PB17 budget is the restructure of the Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) program. The RAQ–25 Stingray will deliver the Navy's first carrier-based unmanned aircraft, a high-endurance platform that will replace today's F/A–18E/F aircraft in its role as the aerial tanker for the Navy's Carrier Air Wing (CVW), thus preserving the strike fighter's flight hours for its primary missions. Stingray will also have the range and payload capacity associated with high-endurance unmanned aircraft to provide critically-needed, around the clock, sea-based ISR support to the Carrier Strike Group and the Joint Forces Commander. The Navy envisions that the open standards to be employed in the Stingray design will enable future capabilities to be introduced to the aircraft after it has been fully integrated into the CVW.

Autonomous Undersea Vehicles (AUV) are a key component of the Navy's effort to expand undersea superiority AUVs are conducting sea sensing and mine countermeasure tasks today with human-in-the-loop supervision. While nominal force structure requirements for fiscal year 2025 have not been determined, the Navy is committed to growing both the size and composition of the AUV force. In the near-term, AUVs present an opportunity to increase undersea superiority and offset the efforts of our adversaries.

The Large Displacement Unmanned Underwater Vehicle (LDUUV) is an unmanned undersea vehicle to offload "dull, dirty, dangerous" missions from manned platforms beginning in 2022. LDUUV will be launched from a variety of platforms, including both surface ships and submarines. The craft's missions will include ISR, acoustic surveillance, ASW, mine counter-measures, and offensive operations.

The Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) commonly referred to as Knifefish employs low-frequency broadband synthetic aperture sonar. Knifefish is planned for incorporation into increment four of the LCS mine countermeasures mission package.

WEAPONS

The fiscal year 2017 budget invests in a balanced portfolio of ship self-defense and strike warfare weapons programs. The Navy has made significant strides in extending the Fleet's layered defense battle-space while also improving the capabilities of the individual ship defense layers in order to pace the increasing anti-ship missile threat.

Standard Missile-6 (SM–6) provides theater and high value target area defense for the Fleet, and with Integrated Fire Control, has more than doubled its range in the counter-air mission. As the Secretary of Defense announced a few weeks ago, we are modifying the missile to provide vital anti-surface capability. The Evolved Sea Sparrow Missile (ESSM) program awarded the Block 2 Engineering Manufacturing and Development contract in 2015, which will borrow from the SM–6 active guidance section architecture to improve ship self-defense performance against stressing threats and environments. Rolling Airframe Missile (RAM) Block 2 achieved IOC in May 2015, providing improved terminal ship defense through higher maneuverability and improved threat detection.

For strike warfare, the Department's Cruise Missile Strategy has been fully implemented with the PB17 budget submission. This strategy sustains Tomahawk Blocks III and IV through their service lives; integrates modernization and obsolescence upgrades to the Block IV Tomahawk during a mid-life recertification program which adds 15-years of additional missile service life; fields the Long Range Anti-Ship Missile (LRASM) as the Offensive Anti-Surface Warfare (OASuW) Increment 1 solution to meet near to mid-term threats; and develops follow-on Next Generation Strike Capability (NGSC) weapons to address future threats and to replace or update legacy weapons. This plan brings next generation technologies into the Navy's standoff conventional strike capabilities. NGSC will address both the OASuW Increment 2 capabilities to counter long-term anti-surface warfare threats, and the Next

Generation Land Attack Weapon (NGLAW) to initially complement, and then replace, current land attack cruise missile weapon systems.

GROUND FORCES

The focus of our Marine Corps ground modernization efforts continues to be our ground combat and tactical vehicle (GCTV) portfolio, along with the Command and Control (C2) systems needed to optimize this effectiveness of the entire MAGTF once ashore.

The key priority within the GCTV portfolio is the replacement of the legacy Amphibious Assault Vehicle (AAV) with modern armored personnel carriers through a combination of complementary systems. The Amphibious Combat Vehicle (ACV) program is the Marine Corps' highest ground modernization priority and will use an evolutionary, incremental approach to replace the aging AAVs with a vehicle that is capable of moving Marines ashore, initially with surface connectors and ultimately as a self-deploying vehicle. ACV consists of two increments, ACV 1.1 and ACV 1.2. Increment 1.1 will field a personnel carrier with technologies that are currently mature. Increment 1.2 will improve upon the threshold mobility characteristics of ACV 1.1 and deliver C2 and recovery and maintenance mission role variants.

In parallel with these modernization efforts, a science and technology portfolio is being developed to explore a range of high water speed technology approaches to provide for an affordable, phased modernization of legacy capability to enable extended range littoral maneuver. These efforts will develop the knowledge necessary to reach an informed decision point in the mid-2020s on the feasibility, affordability, and options for developing a high water speed capability for maneuver from ship-to-shore.

We are also investing in the replacement of a portion of the high mobility, multipurpose, wheeled vehicle (HMMWV) fleet which are typically exposed to enemy fires when in combat. In partnership with the Army, the Marine Corps has sequenced the Joint Light Tactical Vehicle (JLTV) program to ensure affordability of the entire GCTV portfolio while replacing about one third (5,500 vehicles) of the legacy HMMWV fleet with modern tactical trucks prior to the fielding of ACV 1.1.

Critical to the success ashore of the MAGTF is our ability to coordinate and synchronize our distributed C2 sensors and systems. Our modernization priorities in this area are the Ground/Air task Oriented radar (G/ATOR) and the Common Aviation Command and Control System (CAC2S) Increment I. These systems will provide modern, interoperable technologies to support real-time surveillance, detection and targeting and the common C2 suite to enable the effective employment of that and other sensors and C2 suites across the MAGTF.

INNOVATION

As we continue to use better procurement strategies for ships, aircraft, and other weapons systems, we are also using better ideas to enhance the utility of current assets and to accelerate future capabilities to the Fleet. The Navy and Marine Corps have always been at the cutting edge of technology. To tap into the ingenuity inherent in our force, I created Task Force Innovation: a group from across the department comprised of thinkers, experts, and warfighters with diverse backgrounds and from every level. The Task Force is anchored in the Department as the Naval Innovation Advisory Council, with a location on each coast. These councils rely on feedback from databases such as "the Hatch," a crowdsourcing platform that cultivates solutions from those who know best, our deckplate sailors and marines in the field.

To facilitate ways for new technologies to reach the Fleet unhindered by the overly-bureaucratic acquisitions process, we are implementing Rapid Prototyping strategies. This initiative provides a single, streamlined approach to prototyping emerging technologies and engineering innovations to rapidly response to Fleet needs and priorities.

We are also continuing the research and development of promising technologies such as 3D printing, directed energy weapons, robotics, adaptive force packaging at sea and unmanned vehicles to counter projected threats and using the entire force to prove these concepts. We are continuing the development and testing of the Electromagnetic Railgun and Hyper Velocity Projectile (HVP) as part of a broader Gun/Projectile Based Defense strategy. We plan to demonstrate this capability this fiscal year in preparation for follow-on at sea testing. In 2014, we deployed the first operational Laser Weapons System (LaWS) onboard PONCE in the Arabian Gulf. Lessons-learned from the 30 kilowatt LaWS installation are directly feeding the Navy's investment in Solid State Laser weapons. The Navy is developing a 100-to-150 kilowatt laser prototype for at-sea testing by 2018.

To secure our superiority in cyberspace, we are building a new cyber warfare center of excellence at the Naval Academy, and we have more than doubled our cyber workforce since 2009. In addition to growing the cyber domain, we are also re-designating appropriate positions to count as part of the cyber workforce. The Department is diligently working on ensuring cyber workforce billets are properly coded in our manpower databases for tracking and community management efforts.

There has been a concerted effort to protect cyber positions from drawdowns and maximize direct and expedited civilian hiring authorities to improve cyber readiness and response. Additionally, the DON is supporting the DOD Cyber Strategy in the stand-up of the Cyber Mission Force teams; 40 teams by Navy, 3 teams by Marine Corps and 1,044 cyber security positions within Fleet Cyber and Marine Forces Cyber commands. These positions require unique cyber security skills and qualifications to perform a multitude of cyber security functions that will enhance the Department of the Navy cyber security and defense capability.

POWER—ALTERNATIVE ENERGY FUELING THE FIGHT

Energy is a necessary commodity for modern life, and it plays a critical geopolitical role around the world. Access to fuel is often used as a weapon, as we have seen with Russian action against Ukraine, and threats against the rest of Europe. Although the price of oil has recently declined, the overall trend strongly suggests that over time, the prices could return to the higher levels.

Aside from the obvious economic instability that comes with the volatile price of oil, being overly reliant on outside energy sources poses a severe security risk, and we cannot afford to limit our sailors and marines with that vulnerability and lack of stability. When I became Secretary, our use of power was a vulnerability; we were losing too many Marines guarding fuel convoys in Afghanistan and volatile oil prices were stressing many areas, particularly training.

In 2009, the Department of the Navy set out to change the way we procure, as well as use, energy, with the goal of having at least half of naval energy—both afloat and ashore—come from non-fossil fueled sources by 2020. By using alternative energy sources, we improve our warfighting capabilities; reduce our reliance on foreign sources of fossil fuels; and reduce the ability of potential adversaries the opportunity to use energy as a weapon against us and our partners.

Pioneering new advancements in how we power our platforms and systems is nothing new for the Navy and Marine Corps. For two centuries we have been a driver of innovation, switching from sail to steam, steam to coal, coal to oil, and harnessed the power of nuclear propulsion. Operationally, energy matters now more than ever; our weapons platforms today use far more energy than their predecessors. The new technology we develop and acquire will ensure we maintain a strategic advantage for decades to come. Fueling the ships, aircraft, and vehicles of our Navy and Marine Corps is a vital operational concern and enables the global presence necessary to keep the nation secure.

After successfully testing the Great Green Fleet at the Rim of the Pacific Exercise in 2012, just last month USS *John C. Stennis* Strike Group departed on a routine operational deployment, steaming on an blend of conventional and alternative fuels, as well as conducting underway replenishments at sea with these fuels. The three stipulations we have for our alternative fuels are they must be drop-in, they cannot take away from food production, and they must be cost competitive.

The alternative fuels powering the Great Green Fleet 2016 were procured from a company that makes its fuel from waste beef fats. These alternative fuels cost the Department of Defense $2.05 per gallon. It is critical we continue to use cost-competitive blended alternative fuels in our ships and aircraft to ensure operational flexibility. For example, of the three crude oil refineries in Singapore one is 50 percent owned by China, while an alternative fuel plant is owned by a Finnish company.

This past year, we surpassed the goal the President set in his 2012 State of the Union Address, when he directed the Department of the Navy to have a gigawatt (one-half of our total ashore energy needs in the U.S.) of renewable energy by 2020. The Renewable Energy Program Office (REPO) coordinates and manages the goal of producing or procuring cost-effective renewable energy for our bases, and the power we are buying through our REPO projects will be cheaper than our current rates over the life of the contract. Today, we have in procurement more than 1.1 gigawatts of renewable energy for our shore installations—five years ahead of schedule.

In August, the Department of the Navy awarded the largest renewable contract in federal government history with the Western Area Power Administration. This solar project will meet a third of the energy needs for 14 Navy and Marine Corps

installations, bringing them 210 MW of renewable power for 25 years, and saving the Navy $90 million.

In the Marine Corps, the Expeditionary Energy Office (E2O) continues to focus on increasing their operational reach and empowering Marines in the field. E2O is doing amazing work. The Marine Corps hosts two expos—one on each coast—every year where they ask industry leaders to bring their latest technology, and, if the Marines see an operational use for it, they can buy it. They have invested in items such as small, flexible and portable solar panels that can save a company of Marines in the field 700 pounds in batteries. The Marines are also working on kinetic systems for backpacks and knee braces that harvest energy from a Marine's own movement. These technologies are making our Marines lighter, faster and more self-sustainable on the battlefield.

Across the Fleet and Marine Corps, we have taken numerous energy conservation measures that are aimed at energy efficiency, and have had dramatic impact on our energy use.

For example, two of our newest amphibious ships, USS *Makin Island* and USS *America* use a hybrid propulsion system that has an electric power plant for slower speeds and traditional engines for speeds over 12 knots. When *Makin Island* returned from her maiden deployment, she came back with almost half her fuel budget, despite the fact she stayed at sea an additional 44 days.

We had a Chief suggest we change all the lightbulbs on our ships to LEDs. Now every time a ship comes in for overhaul, we are changing out the bulbs. This simple change is saving us more than 20 thousand gallons of fuel per year per destroyer. They also last far longer, give off better light, and reduce our maintenance costs.

Our sailors are using a Shipboard Energy Dashboard that provides them with real-time situational awareness of the energy demand on the various systems that are running, allowing sailors to see the impact the way they operate a ship can have on fuel consumption. Sailors across the Fleet are taking it upon themselves to make their own platforms as efficient as possible, and the results are tangible.

The Department of the Navy's efforts in energy efficiency have strongly contributed to a decline in the Navy's demand for oil nearly 15 percent from fiscal 2008 to fiscal 2014, and the Marines slashed their oil consumption 60 percent over that same period, according to a recent report by the Office of the Undersecretary of Defense for Acquisitions, Technology and Logistics. While drawdowns in Iraq and Afghanistan have certainly contributed to these numbers, improvements in our use of energy have had an impact on our overall consumption.

Diversifying our energy supply for our ships, our aircraft, and our bases helps guarantee our presence and ability to respond to any crisis because we can remain on station longer or extend our range, reducing the delays and vulnerabilities associated with refueling.

We are a better Navy and Marine Corps for innovation, and this is our legacy. Employment of new energy sources has always been met with resistance, but in every case, adoption of new technologies enhanced the strategic position of our nation through improvements in the tactical and operational capabilities of our force. Our focus on power and energy is helping to ensure the United States Navy and Marine Corps remain the most powerful expeditionary fighting force in the world and enhance their ability to protect and advance American interests around the globe.

PARTNERSHIPS—BUILDING PARTNERSHIPS TO ADVANCE OUR SHARED VALUES

In this maritime century, cooperation with our international allies and partners is critical to defending the global system, as it broadens responsibility for security and stability, while diffusing tensions, reducing misunderstandings, and limiting conflict. It is through a cooperative effort that we will assure our navies can provide the necessary presence to maintain freedom of navigation and maritime security around the world.

I have traveled almost 1.2 million miles and visited 144 countries and territories and all 50 states to meet with sailors and marines and to build partnerships both at home and abroad. International meetings establish the trust that helps us deter conflict and respond in a coordinated and effective manner to manmade or natural crises. We strengthen these partnerships in times of calm because, in times of crisis, you can surge people, you can surge equipment, but you cannot surge trust.

We continue to focus our efforts on the rebalance of assets to the Pacific as an important part of our partnership efforts. Having the right platforms in the right places is a vital piece of ensuring our friends and allies understand our commitment to this complex and geopolitically critical region. We're moving more ships to the central and western Pacific to ensure our most advanced platforms and capabilities

are in the region, including forward basing an additional attack submarine in Guam and forward stationing four Littoral Combat Ships in Singapore. Also, we're providing two additional multi-mission Ballistic Missile Defense destroyers to Forward Deployed Naval Forces (FDNF) in Japan and the P–8A maritime patrol aircraft are making their first rotational deployments in the region. Additionally, USS *Ronald Reagan* replaced USS *George Washington* as our carrier homeported in Japan.

We are hubbing Expeditionary Transfer Docks (T–ESD) 1 and 2 in the vicinity of Korea/Northeast Asia, and hubbing Expeditionary Fast Transports (T–EPF) to Japan and Singapore. In the longer term, by 2018 we will deploy an additional Amphibious Ready Group to the Pacific region and we will deploy a growing number of Expeditionary Fast Transports and an additional Expeditionary Sea Base there.

The U.S. Seventh Fleet along with allies and partner nations combined for over 110 exercises throughout 2015 to train, build partner capability and relationships, and exchange information. The largest exercise, Talisman Sabre in the Asia-Pacific region, in July 2015, featured 21 ships, including U.S. Navy aircraft carrier USS *George Washington* and more than 200 aircraft and three submarines. USS *Fort Worth* participated in Cooperation Afloat Readiness and Training (CARAT) exercises with partner navies from Cambodia, Philippines, Malaysia, Indonesia, Brunei, and Bangladesh to conduct maritime security cooperation exercises.

In addition to participating in many of the exercises as part of the Navy-Marine Corps team, the Marine Corps is also building its capacity to work with our Asia-Pacific partners. Marines participated in 46 exercises in the region in 2015. Examples include Cobra Gold, a crisis-response exercise with partners from Thailand, Singapore, Japan, Republic of Korea, Indonesia, and Malaysia, and exercise Talisman Saber, a United States-Australia exercise focusing on high-end combat operations and peacekeeping transitions. Additionally, Marine Rotational Force Darwin sustains more than 1,000 Marines on a revolving basis to conduct exercises, security cooperation and training with the Australian Defense Force and other countries in the region. This will increase over the next few years to a full Marine Air Ground Task Force.

As we rebalance our expeditionary forces to the Pacific, we will remain focused on maintaining maritime superiority across all domains and geographies, ensuring we don't neglect obligations in places like Europe.

As a continuation of the North Atlantic Treaty Organization's 65-year mission to keep all nations free without claiming territory or tribute, we moved the fourth ballistic missile defense capable DDG, USS *Carney,* to Rota, Spain, to join USS *Donald Cook,* USS *Ross* and USS *Porter* to enhance our regional ballistic missile defense capability, provide maritime security, conduct bi-lateral and multilateral training exercises, and participate in NATO operations. We've also established an AEGIS ashore site in Romania to provide additional shore-based ballistic missile defense capability in Europe, with a second installation in Poland scheduled to come online in the 2018 timeframe.

The Navy and Marine Corps continue to demonstrate support for our allies and friends and American interests in the European region. Alongside the Marine Corps' Black Sea Rotational Force's operations in Eastern Europe, a series of Navy ships have deployed into the Black Sea to ensure freedom of navigation and work with our partners there.

This past fall USNS *Spearhead* completed the Southern Partnership Station 2015 in South America. As *Spearhead* sailed through the Americas, the sailors and marines aboard participated in subject matter expert exchanges and building partner capacity throughout the region. In October, USS *George Washington* and USS *Chafee* participated in the annual multinational exercise UNITAS, which was hosted by the Chilean Navy and included personnel from Brazil, Ecuador, El Salvador, Guatemala, Honduras, New Zealand and Panama to conduct intense training focused on coalition building, multinational security cooperation and promoting tactical interoperability with the participating partner nations. USS *George Washington* also deployed as part of Southern Seas 2015, which seeks to enhance interoperability, increase regional stability, and build and maintain relationships with countries throughout the region while circumnavigating South America. A unique symbol of our desire to build a strong relationship is evident in deployments by our world class hospital ship USNS *Comfort.* As part of Continuing Promise 2015, medical and support staff from across the U.S. military and the region worked alongside nearly 400 volunteers to treat 122,268 patients and conduct 1,255 surgeries. In an historic event during the USNS *Comfort* port call in Haiti, United States and Cuban medics worked side-by-side to treat Haiti's poor and exchange best medical practices. Continuing Promise is without doubt one of the U.S. military's most impactful missions, but future USNS *Comfort* deployments will be affected by today's budget realities. Our security is inextricably linked with that of our neighbors, and we con-

tinue to work with innovative and small-footprint approaches to enhance our interoperability with partners in the Americas.

For some people around the world, sailors and marines who sail aboard our ships are the only Americans they will ever meet, and it is they who represent our country around the world.

In December, I hosted the leaders of our partner navies from West Africa and from Europe and the Americas for the Gulf of Guinea Maritime Security Dialogue. Naval leaders from 16 nations bordering the Gulf of Guinea as well as 37 heads of navy, delegates and representatives from Europe and the Americas came to discuss collaborative solutions to piracy, extremism, trafficking and insecurity in the region. We discussed a unified code of conduct for maritime law enforcement and more direct cooperation in the region. As the economies in the Gulf of Guinea continue to grow, so does the increasing relevance of guarding against maritime terrorism, illicit trafficking of drugs, people and weapons, extremism moving from east to west, and other transnational crime. The United States Navy and Marine Corps will continue to work with our partners in West Africa and help them improve their capabilities and promote collaboration.

Working alongside other navies enhances interoperability, provides key training opportunities, and develops the operational capabilities of the countries and navies with which we have shared values. As we look toward future operations, multinational cooperation will continue to be vital to suppressing global threats, and building these strong partnerships now seeks to enhance and ensure our operational superiority into the future.

Outside of our international partnerships, the Department of the Navy's collaboration with industry, both in technology development and ship and aircraft building and repair, bolsters economic security as well as national security interests at home and abroad.

Finally, our Navy and Marine Corps require the support of the American people to maintain presence. I continue to honor our most important partnership—the one with the American people—by naming ships after people, cities, and states, as a reflection of America's values and naval heritage, and to foster that powerful bond between the people of this country and the men and women of our Navy and Marine Corps.

FISCAL YEAR 2017 BUDGET SUMMARY

The Department of the Navy's proposed budget for fiscal year 2017 is designed to achieve the President's Defense Strategic Guidance (DSG): protect the Homeland, build security globally, and project power and win decisively when called upon. In doing so we have looked across the FYDP to maintain our ability to conduct the primary missions listed in the DSG to 2021 and beyond. Overall the fiscal year 2017 President's Budget balances current readiness needed to execute assigned missions while sustaining a highly capable Fleet, all within a continually constrained and unpredictable fiscal climate.

Our approach to this budget has focused on six objectives. First, maintain a credible and modern sea-based strategic deterrent. Second, sustain our forward global presence to ensure our ability to impact world events. Third, preserve the capability to defeat a regional adversary in a larger-scale, multi-phased campaign, while denying the objectives of—or imposing unacceptable costs on—a second aggressor in another region. Fourth, ensure that the force is ready for these operations through critical afloat and shore readiness and personnel issues. Fifth, continue and affordably enhance our asymmetric capabilities. Finally, sustain our industrial base to ensure our future capabilities, particularly in shipbuilding.

Even as we deal with today's fiscal uncertainty, we cannot let slip away the progress we've made in shipbuilding. It takes a long time, measured in years, to produce a deployable ship. It is the least reversible thing we might do to deal with budget constraints. If we miss a year, if we cancel a ship, it is almost impossible to recover those ships because of the time involved and the inability of the industrial base to sustain a skilled set of people without the work to support them. To do the job America and our leaders expect and demand of us, we have to have those gray hulls on the horizon.

Because of the long lead time needed for shipbuilding, it is not the responsibility of just one administration. This Administration and Congress, in previous budgets, have guaranteed we will reach a Fleet of 300 ships by fiscal year 2019 and 308 by fiscal year 2021. This FYDP establishes a proposed shipbuilding trajectory for our Battle Force and its underpinning industrial base in the years following fiscal year 2021, while maintaining decision space for the next Administration and Congress. As such, the fiscal year 2017 President's Budget requests funding for seven ships:

two Virginia class attack submarines, two DDG 51 Arleigh Burke class destroyers, two Littoral Combat Ships (LCS), and the LHA 8 Amphibious Assault Ship. The budget request also includes funding for refueling and complex overhauls (RCOH) for aircraft carriers USS *George Washington* and USS *John C. Stennis*.

The plan for LCS/FF requests funding for two ships in fiscal year 2017, preserving the viability of the industrial base in the near term and creating future decision space for Frigate procurement should operational requirements or national security risk dictate the need.

The fiscal year 2017 President's Budget includes funding for the modernization of destroyers ($3.2 billion total invested in fiscal year 2017–fiscal year 2021) to sustain combat effectiveness, to ensure mission relevancy, and to achieve the full expected service lives of the AEGIS Fleet. The budget also requests $521 million across the FYDP, in addition to current Ships Modernization, Operations and Sustainment Fund (SMOSF) funding, to support cruiser modernization. The Navy will continue to work with Congress to develop and evaluate funding options to continue this vital modernization.

Above the sea, our naval aviation enterprise grows. Specifically, we continue our recapitalization efforts of all major platforms and increase procurement of F/A–18E/F and F–35 aircraft, and make key investments in current and future unmanned aviation systems and strike warfare weapons capabilities.

While accelerating new platforms and capabilities to the Fleet is a priority, it is equally important to reduce the maintenance backlog created by sequestration. The fiscal year 2017 budget provides additional investments in shipyard and aviation depots in both civilian personnel and infrastructure to achieve that end. As we execute our readiness strategy, our focus remains on properly maintaining ships and aircraft to reach their expected service lives and supporting a sustainable operational tempo.

The cyber domain and electromagnetic spectrum dominance remain Department priorities. The budget includes an increase of $370 million over the FYDP ($107 million in fiscal year 2017) across a spectrum of cyber programs, leading to significant improvements in the Department's cyber posture. Specific elements include funding for engineering of boundary defense for ship and aviation platforms and for afloat cyber situational awareness.

While hardware upgrades and additions are crucial, our investment in people must be equally prioritized. The fiscal year 2017 budget includes a 1.6 percent pay raise for sailors and marines and adds billets for base security. Our personnel initiatives receive funding aimed to recruit, train, and retain America's best.

Our priorities combine to achieve one objective—naval presence. That presence is weighted to meet the national security strategy. The fiscal year 2017 budget sustains a forward deployed presence and continues the rebalance to the Pacific. The number of ships operating in the Asia-Pacific will increase from 52 today to 65 by 2020.

Crafting the Department of the Navy's budget did not come without hard choices. To achieve a balance between current and future capabilities, we were compelled to make several risk-informed decisions. We have proposed deactivating the 10th Carrier Air Wing. This primarily administrative move improves the alignment of carrier air wing and aircraft carrier deployment schedules and alleviates excessive time between deployments for CVWs attached to CVNs in lengthy maintenance phases, without losing any aircraft.

Finally, throughout my tenure, as part of my Department of the Navy Transformation Plan, I have stressed the importance of accountability. We are moving very quickly to an audit ready environment. Congressional support has been critical in providing the resources we need to bring our systems into compliance.

CONCLUSION

As the longest-serving Secretary since World War I, I have truly been able to get to know the men and women of this Department, and I have led institutional change—from inception to reality.

In order to provide our nation with presence, to deter our adversaries and assure our allies, and provide our nation's leaders with options in times of crisis, we have enhanced our capabilities across every area of this department. By focusing on our people, platforms, power and partnerships, we assure we remain the greatest expeditionary fighting force the world has ever known.

Today there is no operational billet in the Navy or Marine Corps that is closed to anyone based on their gender. Men and women wear uniforms common in appearance so they are uniformly United States sailors and United States marines. Career paths are flexible and provide unprecedented opportunities for professional growth. We promote based more on merit and not just tenure. We are encouraging

retention in the Department by creating an environment that doesn't force our sailors and marines to choose between serving their country and serving their families.

We are seeking innovation from within the talent inherent in our sailors and marines. We have established an innovation network, with crowdsourcing platforms established to allow new ideas to get from the deckplates to our leaders.

We are growing the fleet. By the end of this fiscal year, we will have contracted for 84 ships, which will give America a 300-ship Navy by 2019 and a 308-ship Navy by 2021. We stood up a new Deputy Assistant Secretary of the Navy and OPNAV staff for Unmanned Systems development, making us leaders in this emerging capability.

The Navy has fundamentally changed the way we procure, use and think about energy. In the past seven years, the Navy and Marine Corps have significantly lowered fuel consumption. We have sailed the Great Green Fleet on alternative fuel blends and met our goal of having 1 gigawatt of renewable energy powering our shore-based installations five years early.

We are rebalancing our Fleet to meet the goal of having 60 percent of our assets in the Pacific region by the end of the decade, and we continue to contribute to security cooperation and international exercises with our friends and allies around the world.

Since the inception of our nation, America's Navy and Marine Corps have paved the way forward for this country.

As President George Washington once said, "It follows then as certain as that night succeeds the day, that without a decisive naval force we can do nothing definitive, and with it, everything honorable and glorious."

Chairman MCCAIN. General Neller?

STATEMENT OF GENERAL ROBERT B. NELLER, USMC, COMMANDANT OF THE MARINE CORPS

General NELLER. Chairman McCain, Ranking Member Reed, distinguished members of the committee, thank you for the opportunity to appear today to talk about the posture of the United States Marine Corps and your marines.

Our marines remain forward-deployed in Iraq and Afghanistan embarked with their shipmates aboard Navy ships serving in every nation and every climb and place. Our goal and respective maritime character and expeditionary capability have been ably demonstrated during the past year.

However, as we continue in conflict around the world, there really has not been what we would call an inter-war period to reset and reconstitute our force. Today's marines are deploying at a rate comparable to our commitment during Operation Iraqi Freedom and Enduring Freedom.

As we focus our attention across the globe in a security environment where the only certainty is uncertainty, we must make decisions about strategy and structure that will determine our Nation's and our Marine Corps' capability in the future.

History has not been kind to militaries that fail to evolve and change, and we see in the 21st century the potential for dramatic change. The character of the 21st century is rapid evolution, and it is imperative we keep pace with that change.

The efforts of the 114th Congress provided sufficient resources to support the Marine Corps' near-term readiness, and we thank Congress and this committee for that stability.

Nevertheless, as overall financial resources have been diminished, the Marine Corps has protected the near-term operational readiness of its deployed and next-to-deploy units in order to meet operational commitments. This means that our units today deploying are ready, but we do not have the depth on our bench for major

contingencies. The Marine Corps is no longer in a position to simultaneously generate current readiness, reset our equipment, sustain our facilities, and modernize to ensure future readiness.

Maintaining the quality of the men and women in today's Corps is our friendly center of gravity, that which we must protect. This is the foundation from which we make marines win our Nation's battles and return quality citizens to American society.

As the Marine Corps draws down to 182,000 marines at the end of this fiscal year, we continue to assess the capabilities and needs of our future force, whether it be the use of the F–35 fifth generation fighter, cyber warfare, information ops, special operations, embassy security guards, or our security cooperation group.

Modernization is our future readiness and the recapitalization of our force is essential to this future readiness. Your continued investment in facilities sustainment, equipment reset, modernization, ground combat vehicles, aviation, command and control, and digitally interoperable protected networks is critical.

The Congress' intent for your Marine Corps to serve as the Nation's force in readiness guides who we are and what we do, and being ready is central to our identity as marines. With the continued support of Congress, the Marine Corps will remain ready with ready forces today and modernize to generate readiness in the future.

Again, I thank you for the opportunity to appear before you today, and I look forward to your questions.

[The prepared statement of General Neller follows:]

PREPARED STATEMENT BY GENERAL ROBERT B. NELLER

THE COMMANDANT'S POSTURE OF THE UNITED STATES MARINE CORPS PRESIDENT'S BUDGET 2017

PROLOGUE

The United States Marine Corps is the Nation's expeditionary force in readiness. The intent of the 82nd Congress defined and shaped our culture, organization, training, equipment, and priorities. Marines appreciate the leadership of the 114th Congress in reaffirming that role, especially as the strategic landscape and pace of the 21st Century demands a ready Marine Corps to buy time, decision space, and options for our Nation's leaders. Congress and the American people expect Marines to answer the call, to fight, and to win.

Our global orientation, maritime character, and expeditionary capability have all been ably demonstrated during the past year. The capabilities of our total force are the result of the planning and execution of committed marines and sailors operating under the leadership of my predecessors. These capabilities and the posture of our force would not be possible without the support and actions of the Congress. As our attention is spread across the globe in a security environment where the only certainty is uncertainty, we must make decisions about our strategy and structure that will determine our Nation's military capability in the future. Today's force is capable and our forward deployed forces are ready to fight, but we are fiscally stretched to maintain readiness across the depth of the force, and to modernize, in order to achieve future readiness.

SITUATION

The current global security environment is characterized by violence, conflict and instability. Multidimensional security threats challenge all aspects of our national power and the international system. The expansion of information, robotics, and weapons technologies are causing threats to emerge with increased speed and lethality.

Over the last 15 years, the United States fought wars in the Middle East, and your Marines continue to respond to crises around the globe. There has not been

an "inter-war period" to reset and reconstitute our force. Your marines and sailors have remained operationally committed at the same tempo as the height of our operations in Iraq and Afghanistan. As we have remained engaged in the current fight, our enemies and potential adversaries have not stood idle. They have developed new capabilities which now equal or in some cases exceed our own.

This unstable and increasingly dangerous world situation is further complicated by a constrained resource environment from which we must continue current operations, reset our equipment, maintain our warfighting readiness, and at the same time, modernize the force. Therefore, it has become necessary that we continually balance our available resources between current commitments and future readiness requirements. This requires pragmatic institutional choices and a clear-eyed vision of where we need to be in 10–20 years.

WHAT MARINES ARE DOING TODAY . . .

Today, Marines remain forward deployed in Iraq and Afghanistan, and ready to respond to crisis around the world. Marines and sailors are presently managing instability, building partner capacity, strengthening allies, projecting influence, and preparing for major theater combat operations. In 2015, Marines executed approximately 100 operations, 20 amphibious operations, 140 theater security cooperation events, and 160 major exercises.

Our Nation has Marines on the ground in Iraq and Afghanistan today, and we anticipate our commitment could grow in the future. Marines continue to advise, train and enable the Iraqi Security Forces and other designated Iraqi forces with peer-to-peer advising and infantry training. In Afghanistan, Marines continue to serve as advisors with the Republic of Georgia's Liaison Teams (GLTs) in support of Operation Resolute Support. From forward-deployed locations afloat and ashore, Marine tactical aviation squadrons continue to support operations in Syria and Iraq. In 2015, aviation combat assets executed over 1,275 tactical sorties and 325 kinetic strikes that have killed over 600 enemy combatants and destroyed over 100 weapons systems and 100 technical vehicles.

Our Amphibious Ready Group/Marine Expeditionary Unit (ARG/MEU) Teams continue to show their capability a flexible and agile maritime force. In 2015, the Marine Corps deployed over 12,000 Marines with our shipmates on Navy warships. This past year, five separate MEUs supported every combatant commander, participating in exercises and executing major operations. The 31st MEU, our Forward Deployed Naval Force in the Pacific, performed disaster relief operations on Saipan after Typhoon Soudelor passed through the Commonwealth of the Northern Mariana Islands (CNMI). Marines were ashore to support the relief effort within 12 hours of notification and delivered a total of 11,000 gallons of fresh water and 48,000 meals.

As part of the *New Normal* your Corps deployed two Special Purpose Marine Air Ground Task Forces—Crisis Response (SPMAGTF–CR) to US Central Command and US Africa Command. These forces are tailored to respond to crises and conduct security cooperation activities with partner nations, but they do not provide the same flexibility and responsiveness of an ARG/MEU. Our SPMAGTF assigned to CENTCOM today provides dedicated Tactical Recovery of Aircraft and Personnel (TRAP) support to Operation Inherent Resolve, in Iraq and Syria, and simultaneously provides a flexible force for crisis and contingency response. In AFRICOM, our SPMAGTF supported Embassies through reinforcement, evacuation, and operations to reopen a previously closed Embassy in Central African Republic. Your Marines also supported operations during the Ebola crisis and assisted with elections. Finally, a SPMAGTF deployed to the US Southern Command in 2015. SPMAGTF–SC's primary focus was the reconstruction of a runway in Mocoron Airbase, Honduras and theater security cooperation and training in Honduras, El Salvador, Guatemala and Belize.

The Marine Corps' activities in the Pacific are led by Marine Forces Pacific (MARFORPAC) headquartered in Honolulu, Hawaii, with a forward stationed Marine Expeditionary Force (MEF), III MEF, headquartered in Okinawa, Japan. III MEF contributes to regional stability through persistent presence and Marines remain the Pacific Command's (PACOM) forward deployed, forward stationed force of choice for crisis response. The Marine Corps continues to rebalance its force laydown in the Pacific to support Defense Strategic Guidance (DSG), with 22,500 Marines West of the International Date Line, forward-based, and operating within the Asia-Pacific Theater. The planned end state for geographically distributed, politically sustainable and operationally resilient MAGTFs in the Pacific is a long-term effort that will span the next 15 years. The Marine Rotational Force-Darwin (MRF–D), based in Australia's Robertson Barracks, is in its fourth year of operation. This

year we will deploy approximately 1,200 Marines to Darwin for a six-month deployment.

The Marine Corps continues to work closely with the State Department to provide security at our Embassies and Consulates. Today, Marines are routinely serving at 174 Embassies and Consulates in 146 countries around the globe. Approximately 117 Embassies have increased support in accordance with the 2013 NDAA. We have added 603 Marines to the previously authorized 1,000 Marine Security Guards; 199 in new detachments, 274 towards increased manning at current detachments, and 130 towards the Marine Security Augmentation Unit (MSAU). Additionally, the US Embassy in Havana, Cuba was reopened on July 2015, with Marines serving at this Embassy as they do in any other.

Our partnering capabilities assure allies, deter adversaries, build partner capacity, and set conditions for the readiness to surge and aggregate with a Joint, Coalition or Special Operations force for major theater combat operations. Partnering also trains our Marines for environments in which we are likely to operate. In 2015, the Marine Corps, in conjunction with combatant commanders and the Marine Forces Component Commands, conducted more than 140 security cooperation activities, including exercises, training events, subject matter expert exchanges, formal education key leader engagements, and service staff talks. Your continued support has allowed the Marine Corps to operate throughout the world today; now we must ensure our readiness tomorrow.

FIVE AREAS OF FOCUS

Today, in addition to supporting the combatant commander's requirements, the Marine Corps is focused on near-term efforts in five interrelated areas that are vital to achieving our future success: People, Readiness, Training, Naval Integration, and Modernization. Across these five areas, three major themes run throughout: maintaining and improving the high quality people that make up today's Marine Corps; decentralizing the training and preparation for war while adhering to Maneuver Warfare principles in the conduct of training and operations; and modernizing the force, especially through leveraging new and emerging technologies. The future requires Marines to embrace change to leverage the rapid advancements in technology at the pace of the 21st Century in order to gain an operational advantage over any potential adversary we may face in the future.

PEOPLE

The success of the Marine Corps hinges on the quality of our Marines. This is the foundation

from which we make Marines, win our Nation's battles, and return quality citizens to American society. The Marine Corps will maintain a force of the highest quality which is smart, resilient, fit, disciplined and able to overcome adversity. Maintaining the quality of the men and women in today's Corps is our friendly center of gravity. Our goal is to ensure every Marine is set up for success on the battlefield and in life, and understands their value to the Marine Corps and the Nation.

The Marine Corps continues to benefit from a healthy recruiting environment that attracts quality people who can accomplish the mission. Our recruiting force continues to meet our recruiting goals in quantity and quality and is postured to make this year's recruiting mission. We are on track to meet our active duty end strength goal of 182,000 Marines in fiscal year 2016, and we will look to maximize the capabilities of each and every Marine. Where it makes sense, we will look to leverage the unique skills of our Reserve Marines to align what they bring from the civilian sector and better enable the readiness of our Total Force.

As the Marine Corps completes our current draw down, competition for retention will continue. We will strive to retain the very best Marines capable of fulfilling our leadership and operational needs. This is accomplished through a competitive career designation process for officers and a thorough evaluation process for enlisted Marines designed to measure, analyze, and compare Marines' performance, accomplishments, and future potential. The Marine Corps continues to retain quality Marines in a majority of occupational fields while others, like aviation and infantry, are more challenging. An additional challenge for all Marines is remaining focused on training for war balanced against the volume of mandatory "top down" training requirements not directly associated with warfighting.

Marine Leaders have a moral obligation to ensure the health and welfare of the Nation's Marines from the day they make the commitment to serve. We take this responsibility very seriously and strive to maintain the trust and confidence of Congress and the American People by immediately addressing any challenge to Marine Corps readiness and finding solutions through our people and readiness programs.

We have reinvigorated the Marine for Life Program and continue to progress with our Marine Corps Force Integration Plan (MCFIP), Sexual Assault Prevention and Response Program (SAPR), Protect What You've Earned Campaign (PWYE), Suicide Prevention and Response Program, our Wounded Warrior Regiment, Marine and Family Programs, and Transition Assistance Programs. The Marine Corps remains focused on solutions to address the destructive behavior of sexual assault, suicide and hazing. The abuse of alcohol has proven to be a contributing factor across the spectrum of force preservation issues that impact the readiness of our force. Our goal continues to be the elimination of this destructive behavior from our ranks, and we believe that preserving our commanders' ability to lead in this area is a vital element to reaching this objective.

READINESS

The Congressional intent to serve as the "Nation's Force in Readiness" guides who we are and what we do—being ready is central to our identity as Marines. As a force, we will remain ready to fight and win across the range of military operations and in all five warfighting domains—maritime, land, air, cyber and space. The fiscal reductions and instability of the past few years have impacted our readiness. As resources have diminished, the Marine Corps has protected the near-term operational readiness of its deployed and next-to-deploy units in order to meet operational commitments. This has come at a risk.

The Marine Corps will continue to prioritize the readiness of deployed and next-to-deploy units over non-deployed units. The majority of our units are deploying ready while our non-deployed commands lack sufficient resources to meet the necessary personnel, training, and equipment readiness levels in order to respond today. However, to meet Congress' intent that we remain the nation's force in readiness, the Marine Corps requires a "ready bench" that is able to deploy with minimal notice and maximum capability.

Our aviation units are currently unable to meet our training and mission requirements primarily due to Ready Basic Aircraft shortfalls. We have developed an extensive plan to recover readiness across every type/model/series in the current inventory, while continuing the procurement of new aircraft to ensure future readiness. The recovery and sustainment of our current fleet is necessary to support both training and warfighting requirements. Each type/model/series requires attention and action in specific areas; maintenance, supply, depot backlog, and in-service repairs. For example, in our F/A–18 community we are 52 aircraft short of our training requirement and 43 aircraft short of our warfighting requirement due to back log and throughput at the Fleet Readiness Depot and our inventory of spares. If these squadrons were called to on to fight today they would be forced to execute with 86 less jets than they need. With the continued support of Congress, Marine Aviation can recover its readiness by re-capitalizing our aging fleet first as we procure new aircraft to meet our future needs and support our ground forces.

Simultaneous readiness initiatives are occurring with our ground equipment. Our post-combat reset strategy and Equipment Optimization Plan (EOP) are key components of the overall ground equipment "Reconstitution" effort. As of Jan 2016, the Marine Corps has reset 78 percent of its ground equipment with 50 percent returned to the Operating Forces and our strategic equipment programs. This strategic war reserve is our geographically prepositioned combat equipment both afloat and ashore where it makes the most sense to respond to contingencies. We remain focused on this recovery effort and project its completion in May of 2019. This service-level strategy would not have been possible without the continued support of Congress and the hard work of your Marines.

The Facility Sustainment, Restoration and Modernization (FSRM) initiative and current state of facilities is the single most important investment to support training, operations, and quality of life. The 2017 budget proposes funding FSRM at 74 percent of the OSD Facilities Sustainment Model. This reduced funding level is an area of concern. FSRM is a top priority to fix.

The sustainment of military construction (MILCON) funding is crucial to managing operational training and support projects. Marine Corps readiness is generated aboard our bases and stations. As we transition to new capabilities and realign our forces in the Pacific, adequate MILCON will be a key enabler for the Marine Corps' future success.

Readiness is not just in our equipment supply and maintenance, but in the quality and challenging nature of our training through the mental, spiritual and physical readiness of marines and sailors across the force. Readiness is the result of a variety of factors: commitment by leadership, standards-based inspections, evalu-

ated drills and training exercises, and an understanding by all marines and sailors that the call can come at any time. We must be ready and able to answer.

TRAINING, SIMULATION AND EXPERIMENTATION

The Marine Corps' training and education continuum requires parallel and complementary efforts, from Squad Leader to MAGTF Commander. Organizing and executing high quality training is a difficult task. It takes time, deliberate thought, and effort. Our approach to training must evolve. It will emphasize the basics: combined arms, competency in the use of our weapons and systems, and expeditionary operations; but it must reemphasize operations in a degraded command, control, communications, computers and intelligence (C41) environment, camouflage/deception, operations at night, operations in a nuclear, biological and chemical (NBC) environment, and decision-making in rapidly unfolding and uncertain situations. We must provide opportunities to experiment and work with the latest technological advances.

Our war gaming supports the combat development process in order to develop and refine emerging concepts, conceptualize force design, and identify future capabilities and deficiencies within the future operating environments. War gaming achieves this purpose by permitting the dynamic, risk free consideration of disruptive ideas and capabilities which enable innovation and inform Service priorities. War gaming also supports the development of operating concepts and facilitates analysis of alternatives across the ROMO. The Marine Corps is committed to the future development of a war gaming facility at Marine Corps Base Quantico to enhance the study of the evolving characteristics of, and the requirements for, successful warfighting in the future. The Marine Corps is working to leverage virtual and constructive training environments with better tools to train higher level staffs and a focus on our leaders, from the Battalion to the Marine Expeditionary Force level. Enabled by technology, we will increase the amount of training each unit can accomplish in mentally and physically stressing environments for all elements of the MAGTF before they execute on a live training range or in combat.

Our current training schedule of major events will all focus on building on our maritime based operational capability and at the same time providing venues for experimentation. We will emphasize and increase opportunities for force-on-force training and operations in degraded environments in order to challenge Marines against a "thinking enemy" and maximize realism.

Demanding and challenging Professional Military Education (PME) is the best hedge against uncertainty and its purpose is to prepare for the unknown. Marines and sailors of all ranks have the responsibility to educate themselves. The Marine Corps University (MCU) educates over 75 percent of Marine Corps' Captains and Majors and provides PME opportunities for 100 percent of our enlisted force. Our training and education initiatives contribute to our readiness and enhance our ability to integrate with the Naval and Joint Force.

INTEGRATION WITH THE NAVAL AND JOINT FORCE

In order to be the Nation's expeditionary force in readiness the Marine Corps must remain a naval combined arms expeditionary force. Our naval heritage is based on more than tradition; it is mandated by law as our primary service responsibility. Marines will reinforce our role as a naval expeditionary force to create decision space for national leaders and assure access for the Joint force as part of a naval campaign. As the service with the primary Department of Defense Directive and Title 10 responsibility for the development of amphibious doctrine, tactics, techniques, and equipment, our capabilities are reliant on the Nation's investment in our partnered Navy programs. This requires the proper balance of amphibious platforms, surface connectors, and naval operating concepts to shape our force explicitly as part of the Joint Force, understanding where we will both leverage and enable the capabilities of the Army, Air Force and Special Operations Forces.

The Navy and Marine Corps Team require 38 amphibious warships, with an operational availability of 90 percent, to support two Marine Expeditionary Brigades, in order to provide the Nation a forcible entry capability. The Marine Corps fully supports the Secretary of the Navy and Chief of Naval Operations' efforts to balance amphibious platforms and surface connectors that facilitate operational maneuver from the sea and ship-to-objective maneuver. The Long Range Ship Strategy (LRSS) increases the amphibious warship inventory to 34 by fiscal year 2022. We appreciate Congress providing the funding to procure a 12th LPD and the funding for a second ship with the same hull form.

The LPD and the LX(R) represent the Department of the Navy's commitment to a modem expeditionary fleet. *L*-class ships with aircraft hangars and the command

and control capabilities for the distributed and disaggregated operations that have become routine for our ARG/MEU teams. The Marine Corps fully supports the Navy's decision to use the LPD–17 hull for the LX(R) program. This decision is an acquisitions success story that provides a more capable ship, at lower cost, with increased capacity, on a shorter timeline to better support how Marines are operating today and are likely to in the future.

Steady state demand and crisis response sea basing requirements must be met through creative integration of all platforms and formations. This requires an integrated approach that employs warships, alternative shipping and landing basing in a complementary manner. Corresponding to the amphibious ship effort is our investment in tactical ship-to-shore mobility because at some point in the naval campaign, the landing force is going to land. The Amphibious Combat Vehicle (ACV) is critical in the conduct of protected littoral maneuver and the projection of Marines from sea to land in permissive, uncertain, and hostile environments. Our planned investments are framed by our capstone service concept, Expeditionary Force 21 (EF–21). Working with our naval partners, we are aggressively exploring the feasibility of future and existing sea based platforms to enhance the connector capabilities of our LCACs and LCUs. We have a need to modify traditional employment methods and augment amphibious warships by adapting other vessels for sea-based littoral operations. Maritime Prepositioning Ship squadrons have one Maritime Landing Platform (MLP) that is effectively a "pier in the ocean." These ships can move pre-positioned war reserves into theater and serve as afloat staging bases to receive and transfer equipment and supplies as part of an integrated MAGTF or regionally oriented MEB. The end-state is a "family of systems" designed to enhance mobility, interoperability, survivability, and independent operational capabilities to further enhance sea basing and littoral maneuver capabilities well into the 21st Century. The Marine Corps will continue to work closely with the Navy to implement the 30-year ship building plan and to address the current readiness challenges of the amphibious fleet.

The continued development of Information Warfare and Command and Control capabilities are also required for the Marine Corps to operate against increasingly sophisticated adversaries. This requires investments in interoperable combat operations centers. We are identifying and developing command and control systems and information technology architecture to support operations and ensure our ability to maneuver. Framed by service-level concepts like the Navy's Cooperative Strategy 21 (CS–21), we will collaborate with the Navy on a Naval Operating Concept revision in order to shape future naval campaigning and naval expeditionary operations. This concept will include a greater Marine Corps contribution to Sea Control operations through interoperability with the Navy Composite Warfare Commander (CWC) structure in order to disrupt, dismantle and defeat Anti Access/Area Denial (A2/AD) threats and optimize the single naval battle success on and from the sea. Since Marines and Special Operations Forces (SOF) remain forward deployed, we must create true integration models to maximize the capabilities of the sea-based MAGTF, including command and control (C2), alongside our SOF partners. The end state is a fully integrated and ready Navy and Marine Corps team, trained and resourced to support our joint operating concept.

MODERNIZATION AND TECHNOLOGY

History has not been kind to militaries that fail to evolve, and the change we see in the 21st Century is as rapid and dramatic as the world has ever known. That said the Marine Corps' modernization and technology initiatives must deliver future capabilities and sustainable readiness. Marines will continue working to do what we do today better, but equally important, must be willing to consider how these same tasks might be done "differently." The Marine Corps must continue to develop and evolve the MAGTF, ensuring it is able to operate in all warfighting domains. To do so Marines are invigorating experimentation of new concepts in order to advance our capabilities.

We will continue to develop our concepts to take advantage of the capabilities of the F–35 Joint Strike Fighter and all of our emerging aviation platforms, particularly in regard to sensor fusion and electronic warfare. Marines will continue to experiment with and exercise new ways to get the most out of the MV–22 and challenge previous paradigms in order to provide the most effective MAGTFs to our combatant commanders.

We will establish and define, in doctrine, our distributed operations capability in our MAGTFs by the end of fiscal year 2016. With distributed capabilities, we must also ensure our forces are not constrained at the littoral seams between combatant commanders. You can also expect the Marine Corps to continue to pursue tech-

nologies that enhance our warfighting capabilities such as unmanned aerial systems (UAS) and robotics, artificial intelligence, 3–D printing, and autonomous technologies that provide tactical and operational advantage.

The Marine Corps Warfighting Lab leads our experimentation effort to capitalize on existing and emerging technology and MAGTF level exercises. In conjunction with our coalition partners, the Navy and Marine Corps team has experimented with dispersed sea based SPMAGTFs, integrated MAGTFs in Anti-Access/ Area Denial environments, incorporated emerging digital technologies with aviation platforms and our ground forces, and conducted naval integration with interoperable Special Operations Forces during Joint Exercises. We will continue to emphasize experimentation during our exercises as a way to inform the development of distributed doctrine and future operating concepts. Exercises serve as a test bed for experimentation as we search for faster, cheaper and smarter acquisition processes and programs.

The following equipment platforms and acquisition initiatives require special mention:

AMPHIBIOUS COMBAT VEHICLE (ACV)

The ACV is an advanced generation eight-wheeled, amphibious, armored personnel carrier that will support expeditionary maneuver warfare by enhancing tactical and operational mobility and survivability. The Marine Corps plans to procure 694 vehicles: 204 in the first increment and 490 in the second increment. Our plan is to have our first battalion initially capable in the 4th quarter of fiscal year 2020 and all battalions fully capable by the 4th quarter of fiscal year 2023. Your investment in this program provides the Marine Corps with an advanced ship to shore maneuver capability for the Joint Force.

JOINT STRIKE FIGHTER (F–35)

The F–35 is a fifth generation fighter that will replace the Marine Corps' aging tactical aviation fleet of F/A–18 Hornets, AV–8B Harriers, and EA–6B Prowlers. The F–35 will have a transformational impact on Marine Corps doctrine as we work to both do what we're doing today better and "differently." The Marine Corps plans to procure 420 aircraft: 353 F–35Bs and 67 F–35Cs. The first F–35B squadron achieved initial operating capability in July 2015, and our second squadron will become operational in June 2016. The Marine Corps plans to complete its F–35 transition by 2031. We believe the Congressional support investment in this program will pay significant dividends for the capabilities of the Marine Corps and the Joint Force.

CH–53K

The Marine Corps' CH–53K "King Stallion" helicopter will fulfill the vertical lift requirement for amphibious and Joint Forcible Entry Operations. This CH–53 transition is critical to increasing the degraded readiness of the CH–53E community and decreasing the platform's operations and maintenance costs. The Marine Corps plans to procure 200 aircraft. The program achieved Milestone B in December 2005. The CH–53K's first flight occurred in October 2015 and our two aircraft have flown 25.8 hours.

COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS AND INTELLIGENCE (C41)

The modernization and technology effort of the Marine Corps requires an integrated network that is deployable, digitally interoperable, and supportive of rapid advancements in technology and the evolution of combat capabilities. The Marine Corps Enterprise Network (MCEN) establishes a comprehensive framework requiring the development of command and control architecture to simplify and enable operating forces to use services in a deployed environment. The priority is to provide worldwide access to MCEN services from any base, post, camp, station network, tactical network and approved remote access connection. Our goal is to provide an agile command and control capability with the right data, at the right place, at the right time.

Digital Interoperability (DI) is the effective integration of Marines, systems, and exchange of data, across all domains and networks throughout the MAGTF, Naval, Joint, and Coalition Forces, to include degraded or denied environments, in order to rapidly share information. This is a vital step in linking the MAGTF and the Joint Force to get the vast amount of information collected on all platforms into the hands of the warfighters that need it; in the air, on the ground and at sea.

The Marine Corps' goal is to retain our tactical advantage across the range of military operations with today's and tomorrow's systems. Our end state is to field and operationalize ongoing programs and continue to develop solutions that will enhance institutional capabilities and retain our tactical advantage across the ROMO.

OUR CHALLENGES

The character of the 21st Century is rapid evolution. Our potential adversaries have not stood still, and it is imperative that we keep pace with change. Two years ago, the 35th Commandant, came before Congress and testified that:

"...the 36th Commandant will reach a point, probably two years from now, where he's going to have to take a look at that readiness level and say, I'm going to have to lower that so that I can get back into thesefacilities that I can't ignore, my training ranges that I can't ignore, and the modernization that I'm going to have to do eventually. Otherwise we'll end up with an old Marine Corps that's out of date. " [1]

This is where we find ourselves today. The Marine Corps is no longer in a position to generate current readiness and reset our equipment, while sustaining our facilities, and modernizing to ensure our future readiness. The efforts of the I 14th Congress have provided sufficient resources to support the Marine Corps' near-term readiness and we thank the Congress for this fiscal stability. However, PB17 increasingly stretches the Nation's Ready Force. We are deploying combat ready-forces at a rate comparable to the height of our commitment to Operations Iraqi Freedom and Enduring Freedom; we are facing future facilities challenges as we try to sustain our current installations; and we are struggling to keep pace as our potential adversaries rapidly modernize. This is not healthy for your Marine Corps or for the security of our Nation.

The Marine Corps is now on its way down to 182,000 Marines by the end of fiscal year 2016. Although our recruiting force continues to meet our recruiting goals we are challenged to retain certain occupational fields like infantry and aviation. The 21st Century demands capabilities in 5th Generation Fighter Aircraft (F–35), Cyber Warfare, Information Operations, Special Operations, Embassy Security Guards, and the Security Cooperation Group that advises and assists our allies and partner nations. The Marine Corps must continue to develop and retain these capabilities with quality Marines.

In last year's fiscal year 2015 budget we were compelled, due to fiscal pressures, to limit and reduce training for our operating forces. In this year's fiscal year 2016 budget our operation and maintenance funding was further reduced by 5.6 percent. This reduction has been carried forward into our fiscal year 2017 budget. Two years of fiscally constrained operation and maintenance funds will force us to employ a prioritized readiness model for our deploying forces and prevents us from our desired readiness recovery, both in operational training and facilities sustainment. This means the Marine Corps will not have as deep and as ready a bench to draw from for a major contingency.

Modernization is future readiness. The recapitalization of our force is essential to our future readiness with investments in ground combat vehicles, aviation, command and control, and digitally interoperable protected networks. We have important combat programs under development that need your continued support. The Amphibious Combat Vehicle (ACV) will replace our Amphibious Assault Vehicle (AAV), which is now over four decades old. The Joint Strike Fighter will not only replace three aging platforms, but provides transformational warfighting capabilities for the future. Our ground combat vehicles like the Light Armored Vehicle (LAV) have an average age of 33 years and our Ml Al tanks have an average age of 26 years. The Marine Corps is grateful for Congress' support of our wartime acquisition and reset efforts of the MRAP, HMMWV, and the contracting of the Joint Light Tactical Vehicle (JLTV). In summary, the increasingly lean budgets of fiscal year 2016 and fiscal year 2017 will provide increased readiness challenges and cause shortfalls in key areas. This reality will force tradeoffs.

CONCLUSION

"Onefact is etched with clarity; the Marine Corps, because of its readiness tofight, will have a vital role in anyfuture war." [2] Senator Mike Mansfield

Marines will continue to meet the high standards the American people have set for us. As responsible stewards of the Nation's resources, the Marine Corps remains

[1] Gen Amos. Posture of the United States Marine Corps. CMC, Mar 2014.

[2] Honorable Mansfield. Fixing the Personnel Strength of the United States Marine Corps, Adding the Commandant of the Marine Corps as a Member of the Joint Chiefs of Staff. 82nd Congress, 1st Session, House of Representatives, HR 82–666, 30 Jun 1951.

committed to its auditability in order to provide the best Marine Corps the Nation can afford. We will therefore continue to produce highly trained Marines, formed into combat-ready forces, and provide the capabilities the Joint Force requires. The wisdom of the 82nd Congress as reaffirmed by the 114th Congress remains valid today—the vital need of a strong force-in-readiness. Marines are honored to serve in this role.

Marines are innovators and the history of the Marine Corps is replete with examples of innovation out of necessity. With the continued support of Congress, the Marine Corps will maintain ready forces today and modernize to generate readiness in the future because when the Nation calls, Marines answer and advance to contact.

Chairman MCCAIN. Admiral Richardson?

STATEMENT OF ADMIRAL JOHN M. RICHARDSON, USN, CHIEF OF NAVAL OPERATIONS

Admiral RICHARDSON. Mr. Chairman and Ranking Member Reed, distinguished members of the committee, I am honored and humbled to appear before you today as your CNO on behalf of our more than 500,000 active and Reserve sailors, our civilians, and families to discuss the Navy's budget request.

To start, I want to thank you for your leadership in keeping our Nation secure and in keeping our Navy the strongest that has ever sailed the seas. This year's budget continues that important work.

It is always good to start by framing the problem. America is a maritime nation, and our prosperity is tied to our ability to operate freely in the maritime environment. Today's strategic environment is increasingly globalized and increasingly competitive. Global systems are used more, stressed more, and contested more.

The maritime system has seen explosive growth. For the first time in 25 years, there is competition for control of the seas. From the sea floor to space, from deep water to the shoreline, and in the information domain, things are accelerating. The global information system has become pervasive and has changed the way we all do business, including at sea. Technology is being introduced at an unprecedented rate and is being adopted by society just as fast.

Finally, a new set of competitors are moving quickly to use these forces to their advantage, and for the first time in 25 years, the U.S. is facing a return to great power competition. These new forces have changed what it means for the Navy and Marine Corps to provide maritime security.

While the problems are much more numerous and complex, our responsibility remains the same. Naval forces must provide our leaders credible options to protect America from attack, advance our prosperity, further our strategic interest, assure our allies and partners, and deter our adversaries, which rests on the ability of the Navy and our sister services to win decisively if conflict breaks out. If we do not adapt, we will perform below our potential and worse, we may fall behind our competitors.

To do this, the Navy is focusing on four lines of effort. We are going to strengthen our Navy team, strengthen our operating and warfighting at and from the sea, expand and strengthen our partnerships, and achieve high-velocity learning at every level.

Unquestionably, the most part of our Navy is our team. Everything we do starts and ends with our sailors, civilians, and their families. As our platforms and missions become more complex, our need for talented people continues to be a challenge. We need to

recruit, train, and retain the right people, and our sailor 2025 initiatives are aimed squarely at that challenge. These efforts are based on our core values of honor, courage, and commitment and demonstrated through four core attributes of integrity, accountability, initiative, and toughness. That team is committed to our mission, which requires us to strengthen naval power at and from the sea.

This budget reflects some very tough choices as we achieve this aim. We have prioritized shipbuilding and the industrial base. First in that effort is the *Ohio* replacement program, which I believe is vital to our survival as a Nation. We are taking steps to more deeply engrain information warfare. We are also investing in our naval aviation enterprise, rapidly integrating unmanned systems, and bolstering our investments in advanced weapons.

In addition to these investments, we are adjusting our behaviors to keep pace with a world that continues to accelerate. We are doubling down on an approach that relies more heavily on experimentation and prototyping. We are pursuing multiple avenues to drive shorter learning cycles into all that we do. We must learn faster.

To close, I want to mention that recently I had the honor to spend time with Senior Chief Ed Byers, who was awarded the Medal of Honor by the President on behalf of the Congress. Senior Chief Byers represents the very best of our service men and women. He is emblematic of this generation's continued commitment to our core values and to their fellow Americans. The SEAL [Sea, Air, Land] ethos reads in part, my loyalty to country and team is beyond reproach. I humbly serve as a guardian to my fellow Americans, always ready to defend those who are unable to defend themselves. I do not advertise the nature of my work nor seek recognition for my actions.

Mr. Chairman, all our people want to do is protect their great Nation. It is my job to lead them well and prepare them for that task. The 2017 Navy budget is this year's best approach to solving the problems and seizing the opportunities that face the Navy today.

I thank you and look forward to your questions.

[The prepared statement of Admiral Richardson follows:]

PREPARED STATEMENT BY ADMIRAL JOHN M. RICHARDSON

Chairman McCain, Ranking Member Reed, and distinguished members of the Committee, it is an honor to appear before you today. This is my first of hopefully many chances to discuss the future of the United States Navy with you, and as your Chief of Naval Operations, I look forward to continuing to work closely with you to ensure that your Navy is best postured to defend America's interests around the globe.

Prior to my confirmation, I testified that my most serious concern was the gap between challenges to America's security and prosperity and the resources available to protect them. In January of this year, I outlined this gap in more detail when I released *A Design for Maintaining Maritime Superiority* (the *"Design"*), which describes an increasingly competitive environment and the lines of effort the Navy will pursue to execute our mission in that environment. The thinking in the *Design* reflects inputs from leaders inside and out of the Navy and is guiding our way forward. It shaped our budget submission and shapes my testimony below.

The 2017 budget is this year's best approach to solving the problems and seizing the opportunities that face the Navy today. The budget reflects some constants; America has been a maritime nation since we began. Our prosperity continues to depend on our maritime security—over 90 percent of our trade is shipped over the

seas—and this linkage will only tighten in the future. Against the backdrop of this historical truth, current problems and opportunities are growing rapidly. The maritime environment has remained remarkably constant since man first put to sea thousands of years ago. The oceans, seas, shipping lanes and chokepoints are physically unchanged in the modern era, but the maritime system has seen explosive growth in the past 25 years. Traffic over the seas has increased by 400 percent since the early 1990's, driving and outpacing the global economy, which has almost doubled in the same period. Climate change has opened up trade routes previously closed. Access to resources on the seafloor has also increased, both as Arctic ice has receded and as technology has improved. Just as it has in the past, our future as a nation remains tied to our ability to operate freely on the seas.

That maritime freedom is coming under increasing pressure and stress. For the first time in 25 years, there is competition for control of the seas. Nations like China and Russia are using their newfound maritime strength not only to advance their national goals, but also to challenge the very rules and standards of behavior upon which so many nations since the end of World War II have based their growth. We should interpret this challenge to international rules and order as a challenge to our own security and prosperity, and to the security and prosperity of all who support an open, fair architecture.

It is against this background that I consider the gravity of the Navy's mission statement, as reflected in the *Design*:

> "The United States Navy will be ready to conduct prompt and sustained combat incident to operations at sea. Our Navy will protect America from attack and preserve America's strategic influence in key regions of the world. U.S. naval forces and operations—from the sea floor to space, from deep water to the littorals, and in the information domain—will deter aggression and enable peaceful resolution of crises on terms acceptable to the United States and our allies and partners. If deterrence fails, the Navy will conduct decisive combat operations to defeat any enemy."

To me these words are not an abstraction, and are easiest to appreciate in the context of what naval forces do every day. As just one example, there was a day last fall when:

- The destroyer USS *Donald Cook* transited the Mediterranean, following an 11-nation multinational exercise in the Black Sea and a port visit to Odessa, Ukraine—demonstrating our commitment to our NATO allies;
- Sailors at the Navy Cyber Defense Operations Command in Suffolk, VA monitored intrusion prevention sensors that actively mitigated almost 300,000 instances of unauthorized or adversary activity across the Navy network enterprise, including more than 60,000 threats to afloat networks;
- The *Kearsarge* Amphibious Readiness Group, with the 26th Marine Expeditionary Unit aboard, participated in a Turkish-led amphibious exercise, demonstrating our combined capability and physically displaying our commitment to U.S. allies and partners;
- Five ballistic missile submarines patrolled the oceans (the latest in over 4,000 patrols since 1960), providing 100 percent readiness in providing strategic deterrence;
- USS *Fort Worth,* a Littoral Combat Ship, swapped crews in Singapore after participating in a Cooperation Afloat Readiness And Training (CARAT) exercise with the Bangladesh Navy, developing cooperative maritime security capabilities that support security and stability in South and Southeast Asia.
- Sailors from a Coastal Riverine Squadron and an Explosive Ordnance Disposal unit participated in an exercise in Cambodia, increasing maritime security cooperation and interoperability between the two navies;
- Navy SEALS trained and advised Iraqi forces in the fight against ISIL extremists, facilitating, mentoring, and enhancing their ability to secure their territory;
- Members of the Navy Expeditionary Combat Command provided tactical intelligence training to Ghanaian Maritime Law Enforcement and Naval servicemembers at Sekondi Naval Base, increasing our partners' capacity and capability to secure their territorial waters;
- The aircraft carrier USS *Ronald Reagan* launched four F/A–18 fighters to intercept and escort two approaching Russian TU–142 Bear aircraft that approached as the carrier was operating in the Sea of Japan, operating forward to preserve freedom of action; and
- The fast-attack submarine USS *City of Corpus Christi* operated in the Western Pacific, after participating with the Indian and Japanese Navies in Exercise

Malabar 2015, increasing our level of engagement with our partners across the Indo-Asia Pacific.

All of these events occurred on a single day: October 27, 2015. But none were in the headlines. That is because on that day the guided missile destroyer USS *Lassen* conducted a freedom of navigation operation in the South China Sea, one of the many visible demonstrations of our international leadership and national commitment to preserving a rules-based international order that the Navy conducts routinely around the world.

Your Navy's ability to execute these responsibilities—our mission—is becoming more difficult as three interrelated forces act on the global economic and security environments, and as new actors rise to challenge us. I have already described the first force—the force exerted by the expanding use of the maritime domain, on, over, and under the seas. This global system is becoming more used, stressed, and contested than perhaps ever before, and these trends show no signs of reversing.

The second force is the rise of the global information system. Newer than the maritime system, the information system is more pervasive, enabling an even greater multitude of connections between people and at a much lower cost of entry. Information, now passed in near-real time across links that continue to multiply, is in turn driving an accelerating rate of change.

The third interrelated force is the rising tempo at which new technologies are being introduced. This is not just information technologies, but also those that incorporate advances in material science, increasingly sophisticated robotics, energy storage, 3–D printing, and networks of low-cost sensors, to name just a few examples. The potential of genetic science and artificial intelligence is just starting to be realized, and could fundamentally reshape every aspect of our lives. As technology is developed at ever-increasing speeds, it is being adopted by society more quickly as well—people are using these new tools as quickly as they are produced, in new and novel ways.

Our competitors and adversaries are moving quickly to use these forces to their advantage, and they too are shifting. For the first time in decades, the United States is facing a return to great power competition. Russia and China demonstrate both the advanced capabilities and the desire to act as global powers. This past fall, the Russian Navy operated at a pace and in areas not seen since the mid-1990's, and the Chinese PLA(N) continued to extend its reach around the world. Their national aspirations are backed by a growing arsenal of high-end warfighting capabilities, many of which are focused specifically on our vulnerabilities. Both nations continue to develop information-enabled weapons with increasing range, precision and destructive capacity, and to sell those weapons to partners like Iran, Syria, and North Korea.

From a strategic perspective, both China and Russia are also becoming increasingly adept in coercion and competition below the thresholds of outright conflict, finding ways to exploit weaknesses in the system of broadly accepted global rules and standards. For example, Russia has continued its occupation and attempted annexation of another nation's territory. As perhaps the most startling example, China's land reclamation and militarization of outposts amidst the busiest sea lanes on the planet casts doubt on the future accessibility of our maritime domain. China is literally redrawing the map in the South China Sea by creating artificial islands, to which they then claim sovereign territorial rights, now complete with surface to air missiles and high performance radars. Their activity creates great uncertainty about the intentions and credibility of their leadership.

Russia and China are not the only actors seeking to contest United States and global interests in the emerging security environment. Others are also pursuing advanced technology, including military technologies that were once the exclusive province of great powers; this trend will persist. Coupled with an ongoing dedication to furthering its nuclear weapons and missile programs, North Korea's provocative actions continue to threaten security in Northeast Asia and beyond. Iran's advanced missiles, proxy forces and other conventional capabilities pose threats to which the Navy must remain prepared to respond. Finally, international terrorist groups such as ISIL and al Qaeda have proven their resilience and adaptability and pose a long-term threat to stability and security around the world.

In summary, these new forces have changed what it means for the Navy and Marine Corps to provide maritime security; the problems are more complex, demanding, and numerous than ever before. But our responsibility remains the same. Naval forces must provide our leaders credible options that allow them to advance the nation's prosperity, defend its security, further its strategic interests, assure its allies and partners, and deter its adversaries—which rests on the ability of the Navy and our sister services to decisively win if conflict breaks out. The breadth of challenges we face demands a range of options, and they must be credible. Only then can the

United States effectively advocate as a maritime power for the system of global rules and standards that underpin shared prosperity now and in the future.

It is becoming increasingly difficult for the Navy to present a sufficient number of credible options for leadership. While the predictability provided by the 2015 Bipartisan Budget Act is greatly appreciated, the Navy's fiscal year 2017 budget submission comes on the heels of four prior years' budgets that collectively provided $30 billion less than requested levels to the Department of the Navy. It represents yet another reduction of almost $5 billion from 2016 funding levels. We have started the last six years with a continuing resolution, with an average duration of 120 days. In response, we have had to modify our behaviors with a host of inefficient practices, the use of short-term contracts offering less than best value to the government, and the associated increased workload on our shrinking headquarters staffs. Continuing Resolutions can also delay critical programs, including those with little to no margin for delay, such as the *Ohio* Replacement Program. It's worse than that: the fiscal uncertainty sends ripples through the entire system—the industrial base is hesitant to invest, and our people remain concerned about the next furlough or hiring freeze or overtime cap. This unpredictability adds to the burden on our Navy team and drives prices up.

The challenges are increasing and funding is decreasing. America remains the primary leader of the free world, with the most capable military force on the planet. We remain a maritime nation whose future is inextricably tied to the seas. Our Navy has tremendous responsibilities to ensure that future is secure and prosperous. Within those constraints, our fiscal year 2017 budget proposal reflects the best portfolio of credible options to achieve our mission. Budget constraints are forcing choices that limit our naval capability in the face of growing and rising threats. The Navy's budget addresses our gaps on a prioritized basis, and starts to accelerate our capabilities so that we can maintain overmatch relative to our adversaries.

STRENGTHEN OUR NAVY TEAM FOR THE FUTURE

Without question, the most important part of our budget is our investment in our Navy Team—our Active and Reserve sailors, our Navy civilians, and their families. I am pleased that we were able to provide a 1.6 percent pay raise for our sailors this year, outpacing inflation and 0.3 percent more than last year. Just as important are the investments we are making to improve the environment for the Team. As the *Design* makes clear, some of the biggest impacts that we can make on our warfighting capability do not involve a lot of money, but instead are changes to how we do business.

These changes can't come soon enough. As our platforms continue to become more technologically advanced and missions become more complex, our need for talented, qualified recruits will grow. Further, the competition for that talent grows more intense every day. This budget keeps us on a good path. Our sailor 2025 program is a dynamic set of initiatives, process improvements and management tools designed to increase career choice and flexibility, provide advanced, tailored learning, and expand support to our Navy families. In fiscal year 2017, we begin to fully invest in the Sailor 2025 Ready Relevant Learning initiative, which will begin to create a new way of training our sailors through mobile, modular learning, re-engineered content, and an improved IT infrastructure.

In this budget, we fund a wide range of initiatives to strengthen our sailors individually and as a team. The *Design* highlights the importance of our core values of honor, courage and commitment, as demonstrated through four core attributes—integrity, accountability, initiative, and toughness. We are implementing a strategy, headed up by our 21st Century Sailor Office, to inculcate these attributes throughout the fleet and improve sailor readiness and resilience. We continue to further develop a climate of dignity and respect throughout the Fleet. We also look to eliminate the toxic behaviors that destroy the fabric of the team—including sexual harassment and assault, hazing and alcohol abuse. We have increased funding over the FYDP to address sexual assault prevention and response, adding 24 new positions to the Naval Criminal Investigative Service—on top of 127 additions in the previous two years—to speed investigations while continuing our support for programs aimed at prevention, investigation, accountability, and support for survivors such as the Victim Legal Counsel Program.

As we seek greater efficiencies, planned adjustments allow us to take modest reductions (3,600 sailors in fiscal year 2017) in our active duty end strength. These are consistent with advances in training methods and with standing down the Carrier Air Wing 14. There will be no reductions in force or any other force-shaping initiatives—we will achieve this through natural attrition. Nobody will lose their job.

One of my observations since taking office is that we can do more to increase the synergy between our military and civilian workforces. Your Navy civilians are integral to all that we do. They work in our shipyards and aviation depots, provide scientific and technical expertise in our labs, and guard our bases and other facilities. To respond to increasing security concerns, we have invested this year in increased force protection measures, including in those civilians who keep our people and property safe. Some of the maintenance and readiness shortfalls we are still digging out from were made worse by civilian hiring and overtime freezes and a furlough in fiscal year 2013. Worse, these actions strained the trust within our team. This budget adds a net of over 1,300 civilian positions in fiscal year 2017 to support additional maintenance, enhance security, and operate our support ships, and continues the investments in our civilian shipmates that help to forge one seamless team. Even as we implement these key initiatives to address security and to recover readiness, we balance that growth with reductions over the FYDP of 3,200 FTE (1.8 percent), for a net reduction of 1,900.

STRENGTHEN NAVAL POWER AT AND FROM THE SEA

That team, with our Marine Corps partners, is committed to our mission, which must be conducted in the environment I described above. The *Design* calls for us to strengthen naval power at and from the sea to address the growing scale, congestion, and challenge in the maritime domain. The *Ohio* Replacement Program (ORP) is paramount to that effort, and remains our top priority. In my opinion, it is foundational to our survival as a nation. This budget funds the ORP; construction is planned to start in fiscal year 2021. This start date is vitally important to prevent any impact to continuous at-sea deterrence at a time when it could be even more relevant than today.

To the maximum extent possible, we have also prioritized shipbuilding and the industrial base that supports it. Our current fleet of 272 ships is too small to meet the array of mission requirements our nation demands. In this budget, we remain on a path to achieve 308 ships by 2021. This year, we are funding two advanced guided missile destroyers with upgraded radars (DDG Flight IIIs with SPY–6), two *Virginia*-class attack submarines, two Littoral Combat Ships, and the procurement of an amphibious assault ship replacement (LHA(R)). The Ford carrier remains under its cost cap and will deliver in 2016; we are continuing to exercise strong oversight and discipline to ensure the cost of her sister ships *Kennedy* and *Enterprise* also remain under budget. We have exceeded our shipyard investment goal—we're at 8.1 percent, well beyond the 6 percent legislative requirement.

As the *Design* emphasizes, we are fully committed to further ingraining information warfare into our routine operations. This is essential to the Navy's future. For example, we are increasing procurement of the Surface Electronic Warfare Improvement Program (SEWIP) Block II and III by 45 units. We are also investing in network modernization afloat and ashore through 10 installations of the Consolidated Afloat Networks and Enterprise Services (CANES) system in fiscal year 2017.

To help remediate one of our most stressed areas, we have enhanced our investments in the naval aviation enterprise. We are investing in bringing fifth generation aircraft to the fleet, adding ten F–35Cs over the FYDP. We are also replacing F–18 airframes that are meeting the end of their projected service lives faster than projected, adding 16F/A–18 E/Fs over the next two years. Further, we are adding upgrades to the Super Hornet to make it more capable in a high-end fight. We are updating our strategy to more rapidly integrate unmanned aerial vehicles into our future air wing. Revisions to our unmanned carrier-launched airborne surveillance and strike (UCLASS) program will help us to meet current mission shortfalls in carrier-based surveillance and aerial refueling capacity, and better inform us about the feasibility of future additional capabilities we desire.

To meet an increasingly lethal threat, this budget bolsters our investments in advanced weapons across the FYDP. We are buying 100 additional tactical Tomahawks, 79 more air-to-air AMRAAM missiles, additional sea-skimming targets, and accelerating our investments in SM–6 missile development in order to provide a full range of capability enhancements to the fleet. However, budget pressures also caused us to cut other weapons investments such as the Mk-48 torpedo and AIM–9X air-to-air missile. Many of our production lines are at minimum sustaining rates, and the low weapons inventory is a continuing concern.

ACHIEVE HIGH VELOCITY LEARNING AT EVERY LEVEL

All of these investments will deliver important capabilities to better posture us for the current and future environment. But, as or more importantly, we must also adjust our behavior if we are to keep pace with the accelerating world around us.

This budget reflects some of that increase in pace. We are changing how we approach training and education to take advantage of new tools and to push learning out to where our sailors spend the bulk of their time—their units. The intent is not to burden those units more, but to empower their leaders and give sailors the best tools to support what science is increasingly revealing about how people learn most effectively.

It also means that Navy leaders, up to and including me as the CNO, must exercise full ownership of how we develop and acquire new capabilities for the future. That ownership has four elements: authority, responsibility, accountability, and technical expertise. I am committed to exercising that ownership, and to creating or supporting new ways to exercise it faster.

We are doubling down on an approach that relies more heavily on experimentation and prototyping, connected at the hip with the Fleet, to help meet mission needs while simultaneously helping us to better define our requirements. We are pulling our more ambitious projects closer to the present so we can learn our way forward, faster and with better information. We are taking this approach with the Remote Minehunting System, Large Displacement Unmanned Undersea Vehicle (LDUUV), and UCLASS programs, and we will continue to seek additional programs to which it can be applied.

We are also reexamining our processes and organization to ensure they are best aligned to support a faster pace. This budget includes a small amount of funding for the Rapid Prototyping, Experimentation, and Demonstration initiative, a process we have already begun to implement that "swarms" technical experts to Fleet problems, rapidly generates operational prototypes, and gets them into the hands of sailors and marines so we can continue to refine and improve them. We also are standing up a capability along the lines of the Air Force's Rapid Capabilities Office; we'll call it the Maritime Accelerated Capabilities Office (MACO). This will concentrate requirements, technical, and acquisition expertise on high-priority projects to fast-track their development and fielding.

Finally, Congress has rightly pressed us to reexamine whether we are being as efficient as we can be. Our budget reflects some of the efforts that we are taking in that regard, but fundamentally, we are focused on making every dollar count. I am taking a personal role in that process, asking hard questions and pushing us to become more cost-effective and agile as we apply a learning-based approach to all that we do.

CONCLUSION

This year's budget request represents a portfolio of investments that employ our available resources to best effect. The gap between our responsibilities and our funding levels represents risk—risk of sailors' lives lost, of a weakened deterrent, of a slower response to crisis or conflict, of greater financial cost, of uncertainty for our international partners—all of which affect the security and prosperity of America. While it is impossible to quantify this risk precisely, I believe the balance reflected in this proposal improves our prospects going forward.

Such improvements are much needed. Concurrent with increasing global challenges, budget pressures have led the Navy to reduce our purchases of weapons and aircraft, slow needed modernization, and forego upgrades to all but the most critical infrastructure. At the same time, maintenance and training backlogs—resulting from continued high operational tempo and exacerbated by sequestration in 2013—have delayed preparation for deployments, which in turn has forced us to extend units already at sea. Since 2013, eight carrier strike groups, four amphibious readiness groups, and twelve destroyers have deployed for eight months or longer. The length of these deployments itself takes a toll on our people and the sustainability and service lives of our equipment. Further, these extensions are often difficult to anticipate. The associated uncertainty is even harder on sailors, marines, and their families and wreaks havoc on maintenance schedules, complicating our recovery still further.

We cannot continue to manage the risks we face absent broader change. As CNO, I will strive to keep the U.S. Navy on the road to remaining a force that produces leaders and teams who learn and adapt to achieve maximum possible performance. We will achieve and maintain high standards to be ready for decisive operations and if necessary, to prevail in combat. We will fight for every inch of advantage. In this way, we will provide sufficient, credible, options to leadership in order to guarantee America's security and prosperity now and into the future. I very much look forward to working with you and your fellow Members of Congress as we proceed.

Chairman MCCAIN. Thank you.

Admiral Richardson and General Neller, the fiscal year request for the Navy is 5 percent less than last year, $8 billion less. What does that do to readiness, Admiral?

Admiral RICHARDSON. Sir, our readiness continues to be challenged. I prioritized, in terms of allocating our readiness dollars, that our forward-deployed forces will be ready to deploy. In terms of achieving readiness in our Reserve forces, those forces that will provide reinforcements, we continue to see that recovery date move out to the right as we are able to meet our current bills projecting a current-day readiness. Digging out of that debt is something that moves forward.

Chairman MCCAIN. General?

General NELLER. In order to make up the delta, Chairman, we took some risk in the facilities and some other things also in O&M [Operations and Maintenance]. There was some reduction in some exercises that we are able to do. But we did our very best to fund our readiness accounts for both ground and aviation so that we can sustain and improve our overall readiness. I think——

Chairman MCCAIN. General Dempsey testified before this committee that if we continued sequestration, it would put us on the ragged edge of readiness and ability to defend the Nation. Do you agree with what General Dempsey said?

General NELLER. I would agree that if we end up at sequestration levels, yes, Chairman, that we will be there.

Chairman MCCAIN. We put you into the acquisition equation, both you and Admiral Richardson. Has that been a good thing?

General NELLER. I think it has been a good thing, Chairman. I spend a lot of time talking to our acquisition people and Mr. Stackley, the acquisition professional for the Department of the Navy, and we have conversations whether it is amphibious ships or amphibious combat vehicles or ground tactical vehicles. I spend a lot of time talking about where we are programmatically, and I understand——

Chairman MCCAIN. It has helped.

General NELLER. It has.

Chairman MCCAIN. Admiral?

Admiral RICHARDSON. Senator, I would agree with General Neller. It has helped a great deal, and I look forward to taking some major steps in exercising those authorities, and I look forward to doing more.

Chairman MCCAIN. Admiral, the LCS, the Remote Multi-Mission Vehicle—we have spent over $700 million of taxpayers' money over the last 17 years. Is your new role in acquisition going to cure outrages such as this $700 million over 17 years? It is still not ready.

Admiral RICHARDSON. Sir, you have got my complete commitment that I will be involved in the details and will do everything I can to prevent those types of decisions.

Chairman MCCAIN. We can count on the carrier not to experience continued cost overruns?

Admiral RICHARDSON. Sir, I think for the last few years, we have seen that the carrier cost has come under control. The future carriers are also coming in under their cost caps. We have the disciplined processes in place and the oversight to keep it that way.

Chairman MCCAIN. There has been a proposal for a separate kind of fund to accommodate for all the new construction, particularly the new submarine. Do you support such an idea?

Admiral RICHARDSON. Sir, the National Sea-Based Deterrence Fund—I have got to say that I really endorse what that fund stands for, which is that we are taking this extremely important program, a nationally important program and elevating the discussion to a national level.

Chairman MCCAIN. Well, we want the discussion to be at a national level, but I am not sure every new weapon system then would not warrant the same kind of special treatment. That is the dilemma here.

Admiral, there is a new report out just today. Iran state TV says the country has retrieved thousands of pages of information from devices used by 10 United States Navy sailors briefly detained by Iran in January. The Tuesday report quotes General Ali Razmjou saying the information was retrieved from laptops, GPS [Global Positioning System] devices, and maps. Razmjou is naval commander [of the Second Naval Zone] in the powerful Revolutionary Guard. General Razmjou said the move falls within Iran's rights under international regulations. Do you agree with that?

Admiral RICHARDSON. I do not, sir. According to international law, there was no authority to board those vessels. Those were sovereign U.S. vessels. They had the right to be where they were, and they should not have been seized.

Chairman MCCAIN. As you mentioned, against international law. They interviewed a military man apologizing. They put them on their knees with their hands behind their heads. They then also videoed an individual crying. Then they decorated the people—the Iranians that did it. Then they had a parade.

What do you think we should have done in response to all that, Admiral Richardson? Would you not agree that this was a humiliation for the most powerful nation on earth, the United States of America?

Admiral RICHARDSON. Sir, I think the Navy has been very clear in terms of expressing our complete protest——

Chairman MCCAIN. That was sufficient, expressing a protest.

Senator Reed?

Senator REED. Well, thank you very much, Mr. Chairman.

I want to first thank the Secretary for his distinguished service over many years. I was just thinking. Are you the longest serving Secretary of the Navy or will you be?

Mr. MABUS. I am the longest serving since World War I. Josephus Daniels, who served during World War I, has the record that I do not think anybody will touch.

Chairman MCCAIN. He became famous for banning alcohol on board Navy ships.

[Laughter.]

Mr. MABUS. I am hopeful my legacy will be a little brighter than that.

Senator REED. I think he was most famous because his assistant secretary of the Navy was Franklin Roosevelt, but that is another story entirely.

Mr. MABUS. It is where sailors would say very sarcastically let us go get a cup of Josephus. It is where "a cup of Joe" came from because alcohol got replaced with coffee, as you as a Navy veteran and me as a Navy veteran know very well.

Senator REED. Thank you, Mr. Secretary.

I also note that the Petty Officer of the Navy, Master Chief Stevens is here. Chief, thank you and thank you for all of the noncommissioned officers that make up our Navy and all the men and women of the Navy.

I want to follow up on a point, Mr. Secretary, that the chairman raised, which is critical, which is the need for the *Ohio*-class replacement, but the need also for a scrupulous budget process that ensures we do not see some of the repetition of cost overruns we saw in other programs.

Last year, in the Defense Authorization Act at section 1022, we took the fund, which the Admiral was just asked about, and expanded authorities to include incremental funding, economic order quantity, et cetera. We also asked for a report from the Navy with respect to the fund.

Let me just—several issues for both you and Admiral Richardson.

First, it has been, I presume—but I would like you to confirm. This is the number one modernization priority of the Navy. Is that correct, Mr. Secretary?

Mr. MABUS. Yes.

Senator REED. Then the expanded authorities under the National Sea-Based Deterrence Fund—Admiral Richardson and Mr. Secretary, you support those enthusiastically I hope.

Admiral RICHARDSON. Sir, I think that to recapitalize this extremely important program, our number one program—I look forward to the combination of appropriations and authorities to get this job done.

Senator REED. The point I think you made, Admiral Richardson, is this sort of falls outside the just traditional Navy shipbuilding because this is part of our nuclear triad, which is the strategic defense of the United States. In fact, I would anticipate down the line, as other components, the air and land components, come on, they would have the benefit of some type of national defense support also.

Admiral RICHARDSON. Sir, it seems to make sense.

The other thing that sets this apart, not only its importance, but the fact that we only do this generationally. It is something that happens about—it has been 40 years since we built the *Ohio*-class.

Senator REED. Is there any idea about when we can expect that report coming up under section 1022 of the Defense Act?

Mr. MABUS. I will give you a definitive answer very soon.

Senator REED. Yes, thank you.

Mr. MABUS. But on the cost, I do want to point out that so far we have taken $10 billion out of this program going forward: $8 billion in terms of construction costs, about a billion dollars in operational maintenance, and about a billion dollars in non-recurring engineering. We want every one of these boats to come in under $5 billion in then-year dollars.

Senator REED. Thank you, Mr. Secretary.

Mr. Secretary, also I mentioned in my opening comments the difficult choice with respect to the V–22. Can you give us some context? I know none of these choices are easy because of the constraints that you face.

Mr. MABUS. Senator, it is my understanding that while the Marine part of the V–22 contract is ending, the Navy part, the carrier onboard delivery, the COD replacement, is picking up. It was certainly not our intent to break the multiyear. In fact, we thought we were folding this under the multiyear. If we inadvertently are breaking the multiyear, that was certainly not our intent. The Marines in their unfunded priority list have additional V–22's that they would also like to procure.

Senator REED. Finally, General Neller, let me just thank you for your service and the service of the men and women in the Corps.

Just a comment is that you are right now trying to get the ACV out the door, and it builds on our experience with the expeditionary fighting vehicle, which was not a happy time. Like the chairman, I hope your personal involvement in the acquisition process and your efforts can get this system to the Corps as quickly and as cost-effectively as possible.

General NELLER. Senator Reed, I was involved with the EFV [Expeditionary Fighting Vehicle] and I understand the concern on the cost. This is a totally different approach using commercial, off-the-shelf vehicles. We are hopeful that the protest will get resolved so that the two vendors will be able to provide 16 vehicles each and we will be able to down-select to a single vehicle from there and buy these vehicles. I will be watching very closely the schedule and the cost of these vehicles.

Senator REED. Thank you very much, sir. Thank you, General.

Chairman MCCAIN. Senator Sessions?

Senator SESSIONS. Thank you, Mr. Chairman.

Admiral Richardson, it is conventional thought, is it not, that the triad is important? This administration supports the entire triad, but the Ohio submarine replacement program would be critical to that and perhaps the most important part of it for our national security.

Admiral RICHARDSON. Sir, I think all the legs of the triad are critically important. Ours is obviously—the one we are focused on is the sea-based leg, which will carry 70 percent of the warheads in the future.

Senator SESSIONS. I know that we have challenges with financing because we are going to have a number of big programs that are going to arise at that same time.

But, Mr. Secretary, you would remain committed to moving forward, would you not, with the *Ohio* replacement? Also the fact that it is now not going to have to be refueled would be another cost saver in the years to come.

Mr. MABUS. That is correct. We only have to build 12 instead of 14 because it does not have to be refueled.

Senator SESSIONS. Now, Mr. Secretary, the Navy analysis for the littoral combat ship has gone on for quite a long time. It started in the 1990's. I remember Admiral Vern Clark, CNO, advocated this. We had the requirement of 55, and then we went to 52. This is a requirement that arose in the Navy and has been maintained

by every CNO and every Secretary of the Navy since, I guess, the program began.

How do you decide that this is a requirement for the Navy? Is there not a formal process you go through?

Mr. MABUS. There is, Senator. It is called the Force Structure Assessment. The last one we did—well, we did one in 2012, which revalidated the need for 52. That was refreshed in 2014, which also validated the need for 52 small surface combatants. We are in the process now of doing another Force Structure Assessment.

Senator SESSIONS. Well, you had the fleet recommendations, the combatant commander's recommendations, worldwide requirements all considered. Is that correct?

Mr. MABUS. That is correct. All requirements are considered.

Senator SESSIONS. Well, how is the production on the ship going now? Is it at or below the congressional cap for cost?

Mr. MABUS. It is a good bit below. The first concern—and rightfully so—was on cost. The price of ships coming off the line today is about 50 percent of the first ones that came off the line.

Senator SESSIONS. Historically the first ship in its class and the second one probably are more expensive than when you move along. It seems to me, having seen that shipyard line being produced, that ship being produced now, it is moving out at a really fine pace. The bugs are getting out of it, virtually all gone. It is coming through an assembly line almost like an automobile.

I fear that we are going to end up raising the cost per copy if we reduce the number of ships and we end up like we did with the B-2 and a lot of other programs. Congress says we are going to do this. The Navy sets out to achieve the goal, and then we alter the plan. Is there a danger that cost per copy would go up?

Mr. MABUS. I think it is almost a certainty, that if you reduce numbers, the cost per copy will go up.

Senator SESSIONS. There are a lot of capabilities that the ship has. They are putting modules on it. One of the modules is the anti-submarine capability. Admiral Richardson, I know you are not happy with where we are on that. Does this strike a blow first at the validity of the ship? Number two, is it a challenge you think cannot be overcome? It is a technological, high-tech challenge. Is it something that we can fix?

Admiral RICHARDSON. Sir, we can fix this. We are behind on the testing there. It is not where I want it to be. I just commissioned, with Secretary Stackley, a 60-day study on the future of the program to incorporate the lessons that we have learned to date, but this is nothing that cannot be overcome.

Senator SESSIONS. We absolutely have to have an improved anti-mine system. Do we not?

Admiral RICHARDSON. We do, yes, sir.

Senator SESSIONS. That is one of the bases for the littoral combat ship in its original plan.

Admiral RICHARDSON. That is one of its missions, yes, sir.

Senator SESSIONS. Well, I hope we can get to the 308-ship Navy, but I do not know how we will get there if we lose another 12 ships. If you replace it with a ship that costs two or three times as much, that is going to be difficult. It also is lean in terms of fuel use and low crew, 40–60 crew to operate the ship compared to 200

or so for the next destroyer type ship. I am concerned about this and I hope that we can continue to discuss it as time goes by.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Shaheen?

Senator SHAHEEN. Thank you all very much for being here today and for your service to the country.

Admiral Richardson, I want to start with you and ask about the status of the Virginia payload module because I understand that the hope is that it will address the loss of strike capability with the retirement of four guided missile submarines. Can you talk about that a little bit and what the current status of the program is?

Admiral RICHARDSON. Yes, ma'am. That is exactly right. Our SSGNs, the submarines that carry large loads of Tomahawk missiles, are going to retire in the mid to late 2020's, and our plan is that by building *Virginia*-class submarines with the payload module installed, we increase the Tomahawk load by 28 missiles per submarine. That program is on track to be incorporated in the *Virginia*-class program in fiscal year 2019. We will do one in that year and two per year after that, consistent with the *Virginia*-class buy. That is really just the beginning of that program, ma'am. Not only will it allow us to reconstitute our strike capacity, but with that much payload volume and large ocean interfaces, we can also do special operations forces, unmanned vehicles, a host of other options.

Senator SHAHEEN. Can you talk about the cost effectiveness of doing that?

Admiral RICHARDSON. It is extremely cost-effective to add that type of capability into a program that is healthy. We need to make sure that we abide by those practices which allow us to achieve and maintain cost-effectiveness.

Senator SHAHEEN. Give me a comparison, if you would. Why does that make more sense than some other options we might have?

Admiral RICHARDSON. Well, you are just really talking about a smaller incremental cost on an already healthy program by inserting that module rather than designing in a completely new program to reconstitute that. As well, by distributing these over more than the four SSGNs we have right now, you not only do it in a fiscally responsible but you increase the options to the warfighter as well.

Senator SHAHEEN. Thank you.

Secretary Mabus, in your recent testimony before the House Appropriations Subcommittee, you pointed out that the Navy has a maintenance backlog problem. Obviously, one of the areas that has been challenging has been in our public shipyards, and as someone who represents the Portsmouth Naval Shipyard, I know that that has been an issue, but one that I was very pleased to see that the administration put in more than the goal of 6 percent for maintenance.

Can you talk about what you expect this year in the budget and whether you will actually be able to use that entire recommendation from the administration for the 7 percent?

Mr. MABUS. Thank you, Senator.

First, Portsmouth and all our public shipyards are doing a terrific job. They were caught, as were so many other things, in se-

quester, the hiring freeze, and there was this maintenance backlog that built up that we are gradually reducing. As you pointed out, we went above the mandatory 6 percent to try to ease that. We are also hiring to the level that those public shipyards need: 33,500 total employees in those shipyards. We will certainly be able to use these monies in Portsmouth and in the other public shipyards. It will allow us to reduce that backlog. Right now, under the current budget, we think we will be completely out from that backlog by 2019, so 3 years from now.

Senator SHAHEEN. That is great.

You also have talked about, from the posture hearing last week, that SOUTHCOM [United States Southern Command] is short on surface vessels. As you may know, we have had a real challenge in the State of New Hampshire and throughout the country in terms of heroin and the extent to which heroin is affecting our communities and families. I just wonder if you could talk about what progress in combating trafficking of narcotics you have seen with the Navy's involvement and whether the shortfall of surface ships in SOUTHCOM might help with this, if we could address that shortfall.

Mr. MABUS. Well, it one of the reasons that we remain so committed to building the fleet to get to that force structure assessment of 308 ships because certainly drug interdiction, the other things we do with our partners in South America and in the Caribbean is a large part of that.

We simply have not had the fleet, as the chairman pointed out. It takes a long time to build a Navy ship and to build a fleet. Once it declines, it takes a long time to turn it around. But we are trying using different types of ships, things like the expeditionary fast transport down there which has the speed to interdict. As the fleet grows, you are going to see more naval assets in SOUTHCOM.

Senator SHAHEEN. Well, thank you. Obviously, that will be very important to help us deal with this epidemic.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Ayotte?

Senator AYOTTE. Thank you, Chairman.

I want to thank you, Secretary Mabus and Admiral Richardson, for including in your request for funding for 2017 for the new junior enlisted barracks at Portsmouth Naval Shipyard. Thank you for really making sure that we prioritize that because I know the conditions were not good there. I am very appreciative of that and thank you.

I also wanted to ask both of you. You both mentioned in your written testimony the large displacement unmanned underwater vehicles. Secretary Mabus, I note that you said in your prepared testimony that you are going to begin to have these vehicles take on some missions in 2022.

As these UUV's are fielded to ensure that we are using our resources wisely, I would encourage the Navy to utilize existing public shipyard infrastructure where possible to support the engineering, technical problems, logistics, and maintenance because you have some expertise there that I think you can take advantage of. Obviously, with the budget situation, to the extent we can use the

expertise that exists at our shipyards—and obviously, the Portsmouth Naval Shipyard has some tremendous expertise.

Admiral Richardson and Secretary Mabus, will you be looking for opportunities to use our existing capabilities and expertise as we continue to develop the unmanned underwater vehicles that I know that we are going to be developing to help defend the Nation?

Mr. MABUS. Yes.

Senator AYOTTE. Great.

Admiral RICHARDSON. Yes, we have absolutely. Particularly the team at Portsmouth has some deep skills in deep submergence, submarine rescue types of things, exquisite types of capability there that we will be turning to.

Senator AYOTTE. That would be great, Admiral. I know they are anxious to partner with you on this and hope to be able to give some assistance to you as we further develop this area to defend the Nation. I appreciate it.

I also wanted to ask about a report that, Admiral Richardson—in October of 2015, the New York Times reported that Russian submarines and spy ships are aggressively operating near the vital undersea cables that carry almost all of our global Internet communications, raising concerns among some American military and intel officials that the Russians might be planning to attack those lines in times of tension or conflict.

What is your assessment of what is happening in terms of Russian intentions and activity related to undersea cables? Obviously, this is very important in terms of our communications system. To the extent you can talk about it in this setting, what are we doing from the Navy perspective to protect those assets?

Admiral RICHARDSON. Ma'am, you are exactly right. About 99 percent of our international transatlantic Internet traffic rides on those cables, and that cannot be reconstituted if that gets disrupted. We are, obviously, taking that threat very seriously. It is extremely difficult to talk about any of that in this forum, but I would welcome the chance to talk to you and give you the full classified brief.

Senator AYOTTE. We will set that up. I appreciate it.

Admiral RICHARDSON. Yes, ma'am.

Senator AYOTTE. Also, not to pick on you today, but I did have a follow-up question either to you or Secretary Mabus, and that is related to our attack submarine fleet.

What I wanted to understand is what our current requirements are for the attack submarine fleet and when the requirement was established and also what percentage of combatant commander requests for attack submarines is the Navy currently meeting.

Admiral RICHARDSON. Yes, ma'am. Our current requirement is for 48. That level I think was established in 2006. Whether I am off by a year or 2, it was a long time ago, and the security environment has changed a great deal since then. I commissioned a study to reassess that level this year.

Currently, as you know, ma'am, the attack submarine profile will dip below that requirement of 48 submarines in the 2020's. That has got us very concerned. We able to meet about 50 to 60 percent of combatant commander demands right now, and so it is a very high demand asset.

Senator AYOTTE. Mr. Secretary?

Mr. MABUS. It is an example, Senator, of when you miss a year building a ship, because we missed some years—we only built one submarine instead of two—you just do not make that up. That is why we are committed to two submarines per year. We have got a multiyear——

Senator AYOTTE. That is what is critical as we look at 2022 where we dip to one *Virginia*-class, that we have got to figure out that we can build two.

Mr. MABUS. One of the things that we are trying to figure out——

Senator AYOTTE. Sorry. 2021.

Mr. MABUS. 2021 because that is the year the *Ohio*-class replacement starts. But you are absolutely right. We are working on how to get the capability and the capacity to do two *Virginia's*- and the *Ohio*-class at the same time. I am confident that will part of the 2018 budget.

Senator AYOTTE. That is excellent. We look forward to working with you on that. I think it is critical as well, as we look at the need out there.

I appreciate, Admiral, that you are already undertaking a reexamination because, as you have rightly pointed out, conditions have completely changed since 2006, and we know of existing threats that are out there that really increase our need for capacity. We appreciate it.

Thank you, all of you.

Chairman MCCAIN. Senator Donnelly?

Senator DONNELLY. Thank you, Mr. Chairman.

I thank all the witnesses for your being here and for the Master Chief as well.

Admiral Richardson, as you know, Indiana is home to Naval Surface Warfare Center-Crane. The foremost mission of the lab is supporting the Navy's strategic weapons system, and given the priority of nuclear modernization, I wanted to invite you to Crane, if you can make it out there.

Admiral RICHARDSON. Sir, I will put it on the list as a priority.

Senator DONNELLY. Thank you very much.

Secretary Mabus, in regards to mental health, I am concerned our services are not adequately staffed to provide troops with ready and timely access to mental health care. Every quarter, the Navy submits reports that use the current number of Navy mental health providers for both the number of providers required and the number authorized. As we look at this, I would like to see the Navy's last four quarterly reports on mental health requirements and staffing, if you can provide that for us.

Mr. MABUS. I will do that right away, Senator.

Senator DONNELLY. Very good. We would also like an explanation, as you look at that, on how you calculate your mental health staffing requirements and your recommendations for whether and how we can modify the PHRAMS [Psychological Health Risk-Adjusted Model] or another model to better meet the Navy's needs, if you can do that.

Mr. MABUS. We will do that, Senator.

[The information referred to follows:]

Senator Donnelly, as you requested, here are the last four quarterly reports on our mental health requirements. In addition, I believe that it is important to discuss our approach and growth in mental health staffing over the past server years, which is included below the reports.

The fiscal year 2015 second quarter staffing numbers are:

	MIL	CIV	CONTRACTOR
Psychologist	84% (140/166)	78% (95/122)	84% (102/122)
Psychiatrist	91% (108/119)	86% (37/43)	99% (24/25)
Social Worker	99% (73/74)	82% (85/104)	80% (73/91)
Mental Health Register Nurse	145% (64/44)	33% (12/36)	92% (81/88)
Mental Health Nurse Practitioner	133% (32/24)	33% (1/3)	100% (9/9)
Other Licensed MH Provider		70% (19/27)	93% (39/42)
Technician/Counselor	116% (434/373)	158% (38/24)	90% (200/221)

The fiscal year 2015 third quarter staffing numbers are:

	MIL	CIV	CONTRACTOR
Psychologist	87% (146/167)	79% (97/122)	84% (100/119)
Psychiatrist	98% (118/120)	91% (39/43)	81% (21/26)
Social Worker	99% (73/74)	83% (86/104)	82% (71/87)
Mental Health Register Nurse	136% (60/44)	33% (12/36)	88% (76/86)
Mental Health Nurse Practitioner	146% (35/24)	33% (1/3)	100% (8/8)
Other Licensed MH Provider		59% (16/27)	95% (39/41)
Technician/Counselor	114% (426/373)	154% (37/24)	90% (199/220)

The fiscal year 2015 fourth quarter staffing numbers are:

	MIL	CIV	CONTRACTOR
Psychologist	87% (148/167)	79% (103/132)	81% (93/114)
Psychiatrist	94% (113/120)	86% (38/48)	77% (24/31)
Social Worker	101% (75/74)	78% (83/106)	70% (62/89)
Mental Health Register Nurse	136% (60/44)	38% (14/37)	88% (71/81)
Mental Health Nurse Practitioner	146% (35/24)	25% (1/4)	99% (10/11)
Other Licensed MH Provider		61% (17/28)	94% (30/32)
Technician/Counselor	115% (428/373)	132% (37/28)	88% (177/202)

The fiscal year 2016 first quarter staffing numbers are:

	MIL	CIV	CONTRACTOR
Psychologist	98% (164/166)	88% (105/132)	77% (96/124)
Psychiatrist	84% (109/129)	86% (36/48)	61% (17/28)
Social Worker	101% (77/76)	76% (81/106)	78% (70/90)
Mental Health Register Nurse	134% (59/44)	33% (12/36)	92% (81/88)
Mental Health Nurse Practitioner	133% (32/24)	0% (0/4)	99% (9/10)
Other Licensed MH Provider		64% (18/28)	95% (35/37)
Technician/Counselor	107% (409/380)	132% (37/28)	91% (188/206)

Our end strength is driven by Operation Plans. We assign the active duty staff in locations where they can best serve active duty needs, and concurrently maintain skills and proficiencies needed for an operational assignment. As part of this effort, we place providers, including mental health staff, in operational units to improve access and service.

We augment AD staff with civilians, either Government Service or contract, based on enduring demands; for example, our ability to recruit in specific markets to meet in-garrison demand by monitoring patient workload, access, and the capacity of the TRICARE network. As such and in response, we have grown 195 active duty and GS civilian mental health staff in the specialties of psychiatry, clinical psychology, social worker, mental health nurse practitioner, and mental health nurses from fiscal years 2009 through 2015. This has enabled us to meet the fiscal year 2010 NDAA section 714 requirement to grow mental health providers by 25 percent.

Senator Donnelly, thank you for the question on how we calculate our mental health staffing requirements. It is important that Congress understands that the Operation Plans drive our uniformed requirements and our Military Treatment Facilities serve as our readiness platforms to provide a ready force at a moment's notice. This requirement is complemented with the need to maintain skills and proficiencies at our Military Treatment Facilities needed for an operational assignment and ensure that we are optimizing our wartime requirement when in garrison.

Over this past year, the Tri-Service Manpower Workgroup, the Manpower and Personnel Operations Group and the Medical Deputies Action Group have worked to develop metrics to optimize and synchronize our manpower requirements across the MHS for peacetime service to the warfighter.

While there are workload-based outputs, the Tri-Service Manpower Workgroup has determined that the Psychological Health Risk Adjusted Model for Staffing (PHRAMS) does not accurately project the mental health needs of each Service's total overall mission, nor does it accurately account for operational requirements or emerging mental health needs.

The Navy recommends that the Services continue to evaluate the existing PHRAMS tool as a potential supplemental methodology to support and/or assist with mental health manpower resource allocation decisions within each Service and across the MHS for peacetime optimization.

Senator DONNELLY. Great.

This is probably for Admiral Richardson. You know, when I was younger, I remember the Pueblo incident in North Korea, and that boat is still there. I remember, in reading and following it, one of the biggest problems we had was when it was taken, there were really no assets around to try to help out from what was indicated. We saw what happened with the riverine boats.

You know, obviously, there is an investigation going on. But from what is read and how much is true we do not know. Talk about cannibalizing parts from a third boat to try to put a second boat together, problems with satellite gear, problems with other things that were involved. What we want to try and do, obviously, is to avoid these kinds of scenarios in close border areas and in places especially like North Korea and the Iranian border.

What is being done to ensure this does not happen again? That is question one, and then question two is, if it does, what are doing to make sure they do not take the boat and bring it to wherever they are going?

Admiral RICHARDSON. Right. All of those questions are very valid questions. Those are the exact questions I have and about 100,000 more. That is what the investigation is getting after. We intend that to be comprehensive to address all of those factors.

But we are not waiting for that to get done in terms of moving out and starting to improve the way that we operate, support those ships, particularly those ones that are forward-deployed. The team and 5th Fleet and really around the Navy has taken a look at how that system works and where the vulnerabilities are and shoring those up.

With respect to the support that those boats had, they were in the middle of the Persian Gulf, as you know. There were two carriers there. There was no shortage of support. It happened on a very quick timeline. But the response was—the details of that will be part of the investigation, and we look forward to a briefing you on that when it is done.

Senator DONNELLY. Is one of the things that we are checking on the status of our riverine inventory, the quality of it, what shape it is in, maintenance of it, all of those kind of things? Because one of the things that concerned me was to see to get two going, we needed three. You are in a position where neither—two out of three could not do it on their own. It had to kind of be put together to put one together. I was wondering where we are with that.

Admiral RICHARDSON. Absolutely. We are looking at every aspect of the readiness generation of that part of our Navy and the rest.

You say you do not want it to happen in forward-deployed places near threat countries. I do not want it to happen anywhere in our Navy. We are looking comprehensively.

Senator DONNELLY. Because one of the things is, as you well know and as you all care so much about, you do not want to put these sailors in a position of having to make almost impossible decisions.

Admiral RICHARDSON. Absolutely right, sir.

Senator DONNELLY. General Neller, I want to ask you. We just saw Vladimir Putin talk about the number of troops in Syria that he is supposedly going down now. We do not know if he is actually going to do it, if he is not going to do it. You are the leader of a lot of extraordinary soldiers in that neighborhood, you know, in the area. I was wondering what your opinion is of what is going on with him and what the appropriate response is and how you think this plays out.

General NELLER. Senator, I can only take it face value. We all found out yesterday that he decided he is going to withdraw because he said he accomplished his mission. Obviously, there is a political piece to this.

As far as on the battle space, cessation of hostilities was honored to some degree by his forces. I think it potentially creates an opportunity for some forces, to include those that we support. If the amount of aviation support that they are getting from the Russians is going to go down, it should enhance their ability to maneuver.

There has been some progress. The one town, Shaddadi, was taken by YPJ [Women's Protection Units]. There is other progress going on. I know a little bit more about what is in Iraq, but I think Iraq is a different case than Syria. But I think—and I have not talked to the Chairman about this, but my personal opinion is that I think it creates some opportunity for those forces that we have been supporting to possibly make a little more progress.

Senator DONNELLY. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Ernst?

Senator ERNST. Thank you, Mr. Chair.

Gentlemen, thank you for being here today.

General Neller, as you know, the Marine Corps just completed an exercise, Ssang Yong, and it was a multilateral amphibious assault exercise conducted in the Pacific by Navy and Marine forces with the Republic of Korea and other allies. This exercise successfully demonstrated full spectrum combined amphibious operations and was a powerful reassurance measure to a number of our allies and, of course, a strong statement of power projection to our adversaries, which is very important I feel.

We have yet to see the requisite number of amphibious ships underway to test the full capacity of a baseline expeditionary strike group, Marine Expeditionary Brigade in the training environment. With that as an intro, we know that there is a shortage of amphibious ships.

Can you provide further insights on how these shortfalls impact the readiness of the Corps and your ability to provide scaleable MAGTFs [Marine Air-Ground Task Forces] as your contribution to the joint force? If you would please expound on that, please.

General NELLER. Well, Senator, thank you for the question.

If you went by COCOM [Combatant Commands] requests for forces, the requirement for amphibs would be close to 50. The stated requirement between Admiral Richardson and my predecessor was 38 to come up with a number of 34, which is what you need to embark two Marine expeditionary brigades, which is what is at the high end for a forcible entry capability.

The landing at Ssang Yong combined two Marine Expeditionary Units. It was commanded by the 3rd Marine Expeditionary Brigade, General Jansen out of Okinawa. But it was comprised of six of our ships and then a number of ROK [Republic of Korea] Marine ships, and there were also Australian and New Zealand soldiers that were part of the landing force.

Right now, we have 30 amphibious ships. Based on the readiness of those ships, we could probably get—it has actually improved. The fleet readiness plan is—because we have worked really closely with the Navy, the fleet readiness plan is improving the overall readiness of the amphibious fleet, but it has to be that in conjunction with procurement of more new ships.

We will be up to 34 ships by 2024 and up to 38 by 2028, and then we will go back down on the other side if there is not a change.

That is what our requirement is. We cannot meet all the requirements of the combatant commanders today, which is why we have two land-based special purpose MAGTFs to provide a comparable capability for crisis response.

I appreciate the question. We are working very hard. This budget and this Congress has funded the 12 LPD [landing platform/dock], LPD–28, and they are in budget. The FYDP [Future Years Defense Program] is the LX(R), first class of a new ship, which would start to be built in 2020, which gets us to this number of 34.

Senator ERNST. I appreciate that.

Is that your best advice to us, General Neller, is simply funding, or is there more that we can be doing as Congress?

General NELLER. I hate to say that things can be solved by money, but as we talked about and the Secretary mentioned, if you buy ships en bloc and you have an overlap, the cost of the ship goes down. That is an overall greater commitment of resources, but once you skip a year, the workforce degrades, the cost of the construction goes up. You cannot procure materials, early materials. There is money in this budget and then fiscal year 2018 plan to buy lead materials for the LX(R). The best way and the most cost effective way to build ships is to, when you decide on a design, block them out and have an overlap so you build them and there is no gap.

Senator ERNST. Thank you, General.

Secretary Mabus, on February 2nd, the last time that you appeared in front of the committee, we discussed the fact that the Director of Naval Intelligence, the Navy's top intelligence officer, has been without an active security clearance for over 2 years. Is this individual still in that position?

Mr. MABUS. Yes, he is, Senator. Let me give you some detail about that.

When I was informed in late 2013 that Admiral Branch was possibly connected to the GDMA [Glenn Defense Marine Asia] case, I

thought because of his position, I should remove his security clearance in an excess of caution. I was also told, though—assured—at that time that a decision would be made within a very short time, a matter of weeks I was told, as to whether he was involved and what would be the disposition of the case. We continued to check on that over and over and over again and got nothing.

By the early fall, September of 2014, I decided that we had to nominate a successor, which we did, but because of some intervening events, that nomination did not get up here until last fall. At the same time that nomination got up here, we had a new Chief of Naval Operations who rightfully wanted to make sure that flag officers were in the positions with the best skill set and the best qualifications.

Senator ERNST. I understand.

Mr. MABUS. One other thing that I do think is important. During this entire time, I have been checking with General Clapper, the head of national intelligence, to ask him if there is any degradation of naval intelligence, if there is any concern about how we are operating or the quality of information that we are gathering or how we are processing that. I have been assured that we are not—that there is not any.

Admiral Branch's two deputies, each of whom has more than 30 years experience, both are taking up the part of his job that requires the classification access. He also has a lot of other hats, including managing a 55,000 strong force, which he continues to do.

Senator ERNST. I do understand that. I still do have a problem with it. I think to lead a Department, you need to lead from the front, and if you have deputies that are doing your job, you are not leading. I still have an issue with that, and I think we will follow up at another time because I am over time.

Thank you, Mr. Chair.

Chairman MCCAIN. Senator Kaine?

Senator KAINE. Mr. Chairman, with your position, I would like to swap places with Senator King so he can get to an Intel meeting.

Chairman MCCAIN. No.

[Laughter.]

Senator KING. That was the answer I was expecting somehow. Thank you, Mr. Chairman.

First, I want to welcome back our colleague, Senator McCaskill. Great to see you back at our committee and wish you good health.

Admiral Richardson, General Neller, welcome to your first of these hearings. Admiral Richardson, I was at Naval Reactors yesterday, your former command, and I can assure you it is in good hands and really an impressive operation.

Secretary Mabus, you have done an extraordinary job. I was sitting here thinking when you took this job, there were certain words and terms that either were not heard of at all or certainly did not have the meaning that they have today. I made a short list: ISIS [the Islamic State of Iraq and Syria], South China Sea, the Ukraine, nuclear North Korea, Syria, cyber attack. All of those are things that have come to fruition as challenges since you have been Secretary. You have confronted extraordinary challenges, not the least of which is sequestration, all the kinds of budget problems that we have had, and this accelerating threat environment that

we are in. I just want to thank you for really I think extraordinary service over a very difficult period. I want to acknowledge that. I hope some day there is a ship named after you and it is built in Bath just because I know you are from Mississippi.

[Laughter.]

Senator KING. I could not resist.

Mr. MABUS. Talk to some successor of mine about that.

Senator KING. Yes, I will. I will remember that.

Admiral Richardson, to follow up, the decision about naval forces and planning and looking into the future, many of those, if not all, were made before that list I read, before those changes. Are we adequately addressing the change in the world that is affecting the necessity and the needs of the Navy of the future? I worry, to use a tired analogy, that we have got an aircraft carrier moving and we may not be necessarily turning it to respond to new challenges.

Admiral RICHARDSON. Senator, you have hit right at the heart and soul of where I am trying to get the Navy. One is to be more agile so that we can keep pace with the accelerating security environment. But to your point, a number of those concerns were not even on the list of things when we did our last force structure assessment, which is why I have commissioned a new one this year.

Senator KING. I think you mentioned earlier in your testimony there are a couple of other studies you are doing of adequacy of forces and shipbuilding and those kinds of things.

Admiral RICHARDSON. Yes, sir. In addition to the force structure assessment, which will get to sort of the composition and the overall force, I am looking—and General Neller is my partner in this in terms of are we looking at and appreciating all of the creative opportunities and combining the fleet we have right now in new and effective ways to make sure that we do not miss a trick in terms of doing that. We have got some fleet design studies that we owe this committee and we had started on our own, and so we look forward to working together with General Neller on that.

Senator KING. I appreciate that.

We have been talking some about the *Ohio*-class replacement which, of course, the bow wave is starting in about 5 years right outside of this FYDP. It bothers me the way we budget around here, and we have no capital budget. You are talking about a 40- or a 50-year asset. You know, we borrow money to pay park rangers? salaries and we pay cash for 40-year assets. I mean, that is upside down from the way any business or other rational organization would do. You do cash for operations and you borrow for capital assets. Should we not be thinking about this when you are building something and trying to pay for it in 3 or 4 years that is going to last 40 or 50 years?

Admiral RICHARDSON. Sir, I think we should take a look at all of that. We have got plused up for the fiscal year 2021 start of that program. It is going to be important to see those additional funds going forward, or we are going to decimate our shipbuilding budget.

Then, as has been talked about, the National Sea-Based Deterrence Fund. That could provide us some options in terms of not only doing sensible things fiscally but, by virtue of doing that, also achieve some significant savings on the order of 10 or more per-

cent. I think that the combination of the appropriations and the authorities would allow us to do exactly what you say, sir.

Senator KING. Well, I hope we can talk. I have been talking with Chairman Enzi on the Budget Committee about rethinking how we do our Federal budget so that we can have a capital budget. Of course, that presupposes we know what we own, but that is a separate question.

Secretary Mabus, do you have a comment on this funding problem?

Mr. MABUS. Just to reemphasize what the CNO said. We have known for quite a while and the three CNOs I have been privileged to serve with have all testified that we have to have additional funds for the *Ohio*-class replacement because, as Admiral Richardson said, it is a once in a generational thing. The two times we have done this before, 41 for Freedom in the 1950s and 1960s, the *Ohio*-class in the 1970s and 1980s, we have added additional funds because it is a national level program.

Admiral RICHARDSON. Sir, if I could, throughout that, we have got to commit to, as you implied, full transparency and auditability of that money as it is applied to this extremely important program. Even as we consider these options, we are committed to that level of transparency and auditability.

Senator KING. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Fischer?

Senator FISCHER. Thank you, Mr. Chairman.

General Neller, you and the Admiral have both discussed the importance of technological innovation in this year's budget. Can you talk about the role that the 3rd Battalion of the 5th Marines will have in testing the prototype technologies this year?

General NELLER. Senator, thanks for that question.

We are going to take 3rd Battalion, 5th Marines, or 3-5. They are currently deployed in Okinawa. When they come back, they will have at least a year and a number of exercises. One will be Rim of the Pacific, or RIMPAC, and then we will put them out at Yuma in support a Marine air weapons tactics squadron out in training. We are going to give them certain capabilities. We are also going to reorganize certain elements of their force in a different way to work on the ability to distribute them across the battlefield. There will be a communication piece. There will be an ISR piece with unmanned systems. There will be different ways to move them around the battlefield because we will have the aviation assets that will be out there for that exercise.

We are using them rather than creating a unit because they will be a cohesive unit, and we are very confident that the young marines in that unit will take advantage of whatever capabilities we give them and they will tell us whether they are effective or not and/or they will come up with their own ideas. We are counting on the youth and the familiarity with technology, having grown up in part of the digital generation, to help us do that. We will test and learn and give them everything we can give them, and they will come up with new ideas.

Senator FISCHER. Do you think there is going to be a continuing need for this sort of testing, or are you going to consider dedicating

a specific unit to this role? Is it temporary? Is it going to be continual?

General NELLER. I think we will use every exercise that we have with large formations like the MEF [Marine Expeditionary Force], our Corps level headquarters or brigades. There will be a number of amphibious exercises on both the east and west coast. We will, as we have in the past, have them experiment with different operational designs, as Admiral Richardson talked about, different ways to embark the force, different ways to deploy ashore. We will take advantage of the existing exercises and training opportunities, and if we find something that works, then we will adopt it and we will see how it goes.

We have got to change, and the world is changing very quickly. My concern is that we change faster than our adversaries, and I think exercises and taking units like this to practice or play with this stuff is going to help us.

Senator FISCHER. Admiral Richardson, can you discuss the Maritime Accelerated Capabilities Office? Specifically, how is it going to work, and what is it going to focus on?

Admiral RICHARDSON. Yes, ma'am. We are setting that up as sort of a speed lane for acquisition. This is one of the areas where I am trying to take advantage of those additional authorities that were granted to Service Chiefs. It will be based on the Air Force's Rapid Capability Office, which has assembled all of the decision and approval authorities in a very streamlined package so that for those programs for which it is appropriate, we can just move quickly move through the milestones and the acquisition process, get those technologies into production, and then out to the fleet very quickly.

My goal is that we start by setting that speed lane up. We have a couple test cases go through that. I would say that the Stingray, the unmanned carrier-based aircraft, would be one of those very first ones. Then as we adapt, we move more and more programs out to that speed lane and overall speed the process up.

Senator FISCHER. Thank you, sir.

General Neller, I understand that the majority of the Marine Corps budget goes towards the personnel costs. We spoke about this the other evening, and that is even before the Force of the Future initiatives that Secretary Carter has recently announced. How do these initiatives factor into how you are going to manage the force, and what challenges are they going to present to you?

General NELLER. Like all the services, Senator, we have worked very closely with OSD [the Office of the Secretary of Defense] on the Force of the Future. Some of the things we are already doing, and so it will have no impact, as far as we think we have a proper way to recruit. There are certain things like additional educational opportunities where there will be potentially some expense, and there are other things I do not think we know yet.

A lot of these things are going to be in a pilot program and will not be immediately adopted. But there is going to be some expense with some of them, and we will just have to figure out how we are going to do that.

Senator FISCHER. I know every military person who is protecting our freedoms—they want to play a meaningful role. I do not think it is just—as we look to the Force of the Future initiatives, I do

not think it is just that. I think that they also want to have the training and they want to have the resources that they need to complete the mission. They want to have the new technologies that we spoke about earlier. Could address that just in a few sentences, please?

General NELLER. We are in a unique position in that we continue to deploy forces to meet combatant commanders' requirements. We have to sustain the legacy force that we have, and at the same time, we want to modernize. There is pressure on that.

It was mentioned in unfunded requirements. One of the first things we would probably do is put money back in the current operations and maintenance and sustainment. We have protected, to the best of our ability, the modernization because keeping old legacy gear sustainable is fine, but what we really need is we need to get the new gear not just because the marines like the new gear, because they need another gear, whether it is a joint light tactical vehicle or the amphibious combat vehicle or the ground-air task-oriented radar of any of the command and control stuff or the new aircraft that we are going to buy. We need that to be successful on the battlefield in the future because our adversaries have done the same thing. They have recapitalized while we have been focused on the fights that we have been in in the last 15 years.

Senator FISCHER. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Kaine?

Senator KAINE. Thank you, Mr. Chair.

Thanks to the witnesses. Secretary Mabus, congratulations to you and to all. We had a hearing this morning in the Readiness Subcommittee, a readiness posture hearing, and I will say that Admiral Howard and Assistant Commandant Paxton performed admirably. We learned that the Assistant Commandant is the longest serving Assistant Commandant of the Marine Corps since 1950. We are in a day of witnesses before us with long tenures.

The readiness hearing was a shocking one. I had a classified briefing about readiness issues last week, and what I am going to say now is not classified material. This is open material. We talked about it at the hearing.

Today, less than half of our Marine Corps units are ready to perform their, quote, wartime missions, despite having a congressionally mandated role as the Nation's crisis response force. Especially on the aviation side—and I will get to this, General Neller—80 percent of aviation squadrons do not have the required number of aircraft to train. General Paxton talked a bit about that.

On the Navy side, less than half of our Navy's ships are ready to meet wartime plans. Deferred and unplanned maintenance continues to delay training timelines and prolonging deployments. That prolonging of deployments, which used to be 6 months to now 8 to 10, means that ships come back that are significantly more challenged in terms of maintenance issues. These are some of the issues that we talked about this morning.

I know this committee is really interested in this topic and request. Senator McCain has written a letter to the Service Chiefs asking for the fiscal year 2017 unfunded requirements priorities list. I think some of those letters are coming back to us or maybe

some early drafts are coming back to us. I would encourage on the unfunded priorities requirements list, they in fact be prioritized rather than just a big list because that will help us as we grapple with the NDAA [National Defense Authorization Act] challenge. I am going to make that a question for the record as well.

What is the status right now on the aviation side, naval and marine, the status of aircraft awaiting repair at the aviation depots? Has there been any improvements in this awaiting-repair category, and how are we funding depots? What is our ability to bring down that amount of aircraft awaiting repair?

Admiral RICHARDSON. Sir, I will take the first stab at that. This is something that General Neller and I are working very closely on because this affects both of us. This divot in backlog in ready basic aircraft, really the backlog in the aircraft depots, goes back a few years, really exacerbated by fiscal year 2013 and the sequestration that happened then.

We are doing a very systematic appraisal of that process and we are seeing improvements. We improved 44 percent this year over last year, and so we are seeing the throughput of that—the depots improve. General Neller and I were at the fleet readiness—the depot in California. We walked through the entire line. They have got a very systematic approach that looks at all of the limiting lines, and we look forward to sort of continuing to improve that throughput.

Additionally, we are looking forward—these are the legacy aircraft, particularly the strike legacy Hornets. We are looking forward to when the Super Hornets come through, we are learning all of the lessons. We are starting to get prepared for when they come through in the depots. Then as has been submitted with our budget and also on the unfunded list that you mentioned is the request for buying additional Super Hornets in both 2017 and 2018 to help to mitigate that. We are taking a full court press. We are funding those depots to pretty much the maximum executable capacity right now, and we are leaning that system out to get everything we can out of that.

Senator KAINE. Great.

General Neller?

General NELLER. Senator, as the CNO said, I think these accounts are fully funded. There is a number of fleet readiness centers. We have also contracted with additional vendors like Boeing and L3 to do more for the fixed wing aircraft. If they can fulfill their contract—and they did last year—and they do it again and the fleet readiness centers improve their processes—I think at the initial when all these planes kind of descended on them, you know, the processes they had were not effective. The planes sat and they waited. They have gotten much better. I get this not from my own observation but from talking to other people that had visited them a year ago, saying the process here is much improved. They got a much better flow. I believe that we are—in that particular model type series of airplane for F–18A and D, we are at the bottom and we are on our way up and we are going to get better.

Every model type series of aircraft in the Navy and the Marine Corps is a little bit different. Right now, we are in the middle of recapitalizing every one of those, F–35 to replace the F–18, the

AV–8B, and the EA–6B. We are still in the procurement process for MV–22 Osprey. We are buying Hueys and Cobra attack helicopters. The Hueys are almost complete, and there have been some issues with that. Then we are just in the experimentation and the prototyping and flying of the 53 replacement.

I would say right now, the 53 is probably in the worst place because of a number of things that are going to get fixed by this new airplane, but this new airplane is not going to be ready for probably 3 or 4 more years. That procurement will have to be something that goes back to the acquisition that we are going to have to watch and we are going to have to guard.

If we can get more parts, we can get the sustainment at the depots. We are going to get more basic aircraft on the line. Our pilots will fly more hours. Our readiness will go up, and the marines and the sailors that fly these aircraft will do what they want to do, which is fly. There is even a retention piece to this that we have talked about because if you are not flying, then you are not doing what you came in to do. There is a whole lot of things, even maintainers.

It is very complicated, but I think we got a comprehensive plan. We met with our leadership of the aviation enterprise, the Navy and Marine Corps, the other day. The money is there. It is just we are going to have to watch it and press it, and it is going to take a little bit of time.

Senator KAINE. Great. Thank you very much.

Thanks, Mr. Chair.

Chairman MCCAIN. Senator Wicker?

Senator WICKER. Thank you.

Admiral Richardson, our most recent 30-year shipbuilding plan has a target size of 308 ships for the Navy. Chairman McCain touched on this in his opening statement.

I am interested in the methodology behind the Navy's shipbuilding requirements. What year was the 308-ship determination made?

Admiral RICHARDSON. Sir, that was made in 2012 and it was updated in 2014.

Senator WICKER. What was the number in 2012 and what was the number in 2014?

Admiral RICHARDSON. It was 308 throughout. The 2014 just validated the 2012 assessment.

Senator WICKER. Has anything happened around the world since that determination was made that would make us revise that force structure?

Admiral RICHARDSON. Yes, sir. At the time we did that original assessment, we were not contending with the resurgent Russia, ISIL was not on the map, and the Peoples Liberation Army and Navy was in a much different place. The security environment has changed.

Senator WICKER. Three major developments.

Admiral RICHARDSON. At least, yes, sir.

Senator WICKER. Will you be pushing for a revised force structure assessment, and when might we see that?

Admiral RICHARDSON. Sir, I have already commissioned that to start. We intend for that to briskly get done through the spring and look forward to seeing that done in the summer.

Senator WICKER. All right. Right now we are on pace to get to 308 when?

Admiral RICHARDSON. In 2021.

Senator WICKER. Well, we look forward to seeing an accurate force structure based on the current threats.

Admiral RICHARDSON. Yes, sir. I look forward to briefing you on that.

Senator WICKER. Thank you very much.

Let me ask you, General Neller, about amphibious ships. You recently told the House Armed Services Committee that the Marine Corps needs ships cheaper and faster. I think we certainly agree with that.

As you know, Congress added an additional LPD amphibious ship after feedback from your predecessor, General Amos. We appreciate his input and his service as we do yours, sir.

The Navy is now looking to develop the LX(R) class of amphibious ships that will replace our aging dock landing ships. The Navy has made a decision that the LX(R) vessels will use the current LPD–17 hull form. Do you believe that the LPD–17 hull form provides all the capability that you need to replace our legacy dock landing ships?

General NELLER. Senator, thanks for the question.

Yes, I do. We have got a lot of confidence in the LPD–17 class ship, and again, we appreciate the funding for the 12th ship of that class, LPD–28. There was discussion, before I assumed this post, of whether just to go to an LPD–28 repeat. Their was a costing figure for LX(R) that we did not believe LPD–28 could meet at that time. The decision was made to go with the hull form and come up with a new design that would be similar to that, but it would meet the costing of about $1.6 billion and then to further drive down the cost of the ship down to $1.4 billion.

That is going to be competed between two shipyards, and I am confident that they will come up with a design that is similar to the LPD–17 class ship and we can make it in time. The first class of that ship is supposed to be put under contract in 2020.

Senator WICKER. If we could find the money, sir, would you support acceleration of the LX(R) ship competition?

General NELLER. Absolutely, Senator. If we could find the money and we could do a block buy where these ships would be—as Secretary Mabus said, anytime we can build them year after year, we keep the workforce employed. They get faster, they get better. The ship is a better quality. It is put out faster and then generally comes in at a lower price.

Senator WICKER. Thank you.

Admiral Richardson, in the short time we have left, tell us what the future holds for the autonomous surface vessels.

Admiral RICHARDSON. Sir, I would say that the autonomous surface vessel is one of, I would say, a suite of unmanned capabilities that really, behind the Secretary's leadership, the Navy is doubling down on. I think that these autonomous surface vessels provide a capability that can be used in a number of different areas. I have

got my eye on it with respect to the mine hunting mission. I think that that and a number of other areas—but I would be happy to brief you in a classified setting—are real opportunities for the unmanned in general and the surface vessel in particular.

Senator WICKER. Secretary Mabus, do you have anything you would like to add in 20 seconds?

Mr. MABUS. It is the reason that we have stood up the Deputy Assistant Secretary for Unmanned, N–99, on the CNO's staff is to make sure that we are utilizing all the technologies in a comprehensive way in unmanned because we are the only service that does it under, on, and above the sea and to make sure that as we move forward, because these are going to play such a huge role in the future, that we have the technology right and that we are not duplicating, we are not using any money unnecessarily but that we are pushing forward to do the things the CNO just talked about.

Senator WICKER. Thank you, and I look forward to that classified briefing, Admiral. Thank you.

Chairman MCCAIN. Senator Hirono?

Senator HIRONO. Thank you, Mr. Chairman.

Secretary Mabus, I too want to add my thanks to you for your service and wish you the very best going forward.

General Neller, in early March, Japan's Prime Minister Abe announced that he has decided to temporarily suspend preliminary work on the Futenma replacement facility in Henoko on Okinawa. He stated that talks between the local government and Tokyo on the relocation of the base would continue.

How do you see this situation in Japan, Okinawa, playing out? What impact will this have on our overall relocation strategy, including what we are doing in Guam and what we need to be doing in CNMI [the Commonwealth of the Northern Mariana Islands] and going forward?

General NELLER. Well, Senator, first, there is no linkage between Guam and what is going on with the Futenma replacement. I see that, even though we have pushed some number of projects to the right, I think we are still on track to move the number of marines to Guam and do that work.

As far as Okinawa, because part of the judgment is that there will be no work at the Futenma replacement up at Camp Schwab vicinity in Henoko during this time, and they would expect that they are going to reconvene a court rule—or whatever adjudicating authority is going to review this thing until March.

There was not a whole lot of work being done because we were not able to get concrete in. We were going to build a concrete plant there. That buys us some time to do that. But some of the work that was being done out on the reef to get ready to fill in the landfill in—so right now there is nothing going on.

But we continue to support the Japanese Government trying to get an agreement with the prefecture of Okinawa to build the FRF [Futenma Replacement Facility]. We will have to wait and see what happens in March.

Senator HIRONO. You are talking about a year from now?

General NELLER. That is what the agreement was, as I understand.

Senator HIRONO. As a time frame for them to decide one way or the other.

General NELLER. The judge asked them to try to come up with an agreement, and then the government of Japan issued what was called a corrective action order, which gave the government of Okinawa, the governor, until March to reply. Until that time, there is no work being done up there.

Senator HIRONO. More delays. Well, it is what it is.

Secretary Mabus, I believe that U.S. energy security is a vital component of our overall national security. I have had conversations with Department officials who agree that our country's energy security needs are closely tied to our overall national security. The amount of operational energy the Navy needs to carry out its mission is significant, and while fuel costs are low right now, as we know from history, prices do fluctuate and they will probably go up.

I know that the Navy has done significant work in this area, and I commend your leadership on this issue. Can you update us on how the fiscal year 2017 budget affects your efforts to reduce energy consumption, use cleaner alterative sources, and increase U.S. energy security?

Mr. MABUS. Thank you, Senator.

First, the goal is to have at least 50 percent of our energy needs met by alternative sources afloat and ashore.

Ashore, we are there. We got there by the end of 2015, and it is making us more resilient. We are beginning to now move to things like microgrids so we can pull ourselves off the grid. In case something happens, we can still do our military mission. We are doing this almost exclusively through public-private ventures.

At sea, the Great Green Fleet is deployed now. It is sailing on a mixture of marine diesel and biofuels. These biofuels were procured by the Defense Logistics Agency under a regular RFP [Request For Proposal]. They are competitively priced as the law requires and as we require. It is becoming the new normal for that.

The example that I give is in Singapore, you have got an oil refinery—one of their oil refineries there that is owned, a majority, by the Chinese. Right down the road is a biofuels plant owned by a Finnish company. We need to not be dependent on one type or one location of fuel.

Finally, we are also making a lot of headway in terms of efficiencies, reducing the amount of energy that we use. The Navy is down in terms of oil usage by 16 percent since 2009. The Marine Corps is down about 60 percent. Part of that is fewer operations in Afghanistan and Iraq, but the Marines have also been leaders in terms of energy efficiency and making energy where you fight so that you so that you do not have to resupplied.

Senator HIRONO. Thank you.

General Neller, thank you for your efforts in this regard.

Chairman MCCAIN. Senator Tillis?

Senator TILLIS. Thank you, Mr. Chair.

Gentlemen, welcome and thank you for your service.

General Neller, I had a question for you that relates to personnel. I think you are down about 20,000—by the end of the year, about down 20,000 Active marines from the 2012 numbers. I am

kind of curious how that reduction has affected your deployment-time-to-home ratio and any other issues related to retention, morale, or effects on families.

General NELLER. Well, Senator, when we grew the force to 202,000 to meet the operational demand and provide adequate depth-to-dwell when we were fully engaged in Iraq and Afghanistan. As we have withdrawn the bulk of that force and we are bringing the force down to 182,000, that is as 2-to-1 force. In some cases, based on the type of unit, it is inside that.

It remains to be seen what that is going to do to families and retention. It does give us a very short time to get ready to go. We would prefer to be a three-to-one force, which is why the optimal force, based on the current force structure, was said to be 186.8, which gave us a 3-to-1 for aviation squadrons and infantry battalions, which is the normal deployment.

We think 2-to-1 is the minimum. As General Paxton mentioned today in the readiness hearing, we are going to have to cut back some of the capabilities we provide to combatant commanders in order to reduce some of the tempo and pressure on the force, particularly in aviation, and we are prepared to do that not because we want to but we have to give the forces enough time to reset and we have to give them enough time to do the training that they need so that when they do deploy, they are ready to go.

We are watching this very closely. It has our attention, but I think right now it has not been a factor, but I am concerned about it.

Senator TILLIS. It seems to me when you have got threats going in the other direction, to touch on what Senator King discussed and I think what Senator Fischer alluded to, you know, we have got threats today that we did not have in 2012. Admittedly we are not as engaged in, say, Iraq and other areas of the world. But it seems like while the threat profile is going up, our ability to actually provide the combatant commanders what they need is going down. It just does not seem like the right trend lines. We need to continue to watch it.

This may be for Secretary Mabus or Admiral Richardson. I read a news report the other day. Believe me, I do not believe anything I read, and I knew that I was going to come here and see you guys. I thought I would ask you. The Navy is reported to have, in reaction to, I guess, some failing their physical fitness standards tests and not necessarily achieving the existing body mass index requirements, that there have been a change in those requirements. Is that report true? A simple yes or no answer is okay if it is no.

Mr. MABUS. The answer is they have been changed but not for that reason.

Senator TILLIS. Can you give me an idea of why they have been changed?

Mr. MABUS. Yes, because first we would measure people to do the body fat analysis. We would measure their neck and their waist. If they did not pass that, they did not get to take the physical fitness test until they got into spec. One of the things that that penalized were weightlifters, people that were in great shape, because their necks were big. It did not make much sense. We were remov-

ing more people for failing the physical fitness test than we were for drugs.

Senator TILLIS. Secretary Mabus, I completely get that. I think that that would make sense.

The other part of the report—maybe it is not accurate—is that some of the physical fitness test standards had also been changed because of some challenges that we were having. Is that true or false?

Mr. MABUS. They have not been lowered. Some of them have been changed to make them more realistic in terms of what we do. I mean, the Marines have the combat fitness test. The Navy wanted to move toward making it job-related.

But we have also gone to—people were training for the test. We were doing it every 6 months. They would not get in shape until the last couple weeks. They would go on these crash diets and it was going to be dangerous. Now we are doing spot tests. You know, you show up one day and it is your lucky day and you get to put on your PT [physical training] gear and you go out and do the PFT [Physical Fitness Test]. What we are trying to do is have a culture of fitness that you stay fit all the time, not just for the test, and that the physical fitness requirements have something to do with the military requirements of your job.

Senator TILLIS. Thank you, Mr. Chair.

Senator REED [presiding]. On behalf of Senator McCain, Senator Nelson.

Senator NELSON. Thank you, Mr. Chairman.

Gentlemen, thank you for your public service. Mr. Secretary, your public service, long and distinguished governor, Ambassador to Saudi Arabia, and now a very long-serving 7 years as Secretary. Thank you.

Today the administration walked back its plans for drilling off of the east coast of the Atlantic. It is my understanding that the Pentagon was one of the ones that objected, as the Pentagon objected years ago to the drilling off of the coast of Florida where we have the largest testing and training range in the entire United States.

Do any of you all want to give us some insight into the Pentagon's objection that caused the administration to walk this back this morning?

Mr. MABUS. We, as the Navy, had some concerns, particularly on our test ranges and our ability to do exercises in the affected areas. We made those concerns known. There were concerns about both aircraft and ships in the affected areas.

Senator NELSON. Well, that sounds like the similar concerns that were voiced by all branches several years ago in the Gulf of Mexico. In that particular case, it is also a test and evaluation area for the development of new weapon systems because they have got a range that they can go 300 miles over water and even onto land if they need to. It sounds like similar objections.

Mr. MABUS. I know what the objections are this time. The other one, believe it or not, preceded my service, which evidently dates back to World War I now.

[Laughter.]

Mr. MABUS. But my understanding is the concerns were similar.

Senator NELSON. For the Admiral or the Secretary, what do you see as the future for the LCS and particularly the fast frigate?

Mr. MABUS. Let me take the first crack at that and then turn it over to the CNO.

We have got a validated need for 52 small surface combatants. As the CNO testified, that was done in 2012. That was redone in 2014. We are currently doing another one. This will be the only mine hunting platform that we have. This is a crucial part of the fleet going forward for both counter-surface and counter-submarine.

There was a concern about lethality and survivability a couple years ago. We did a yearlong study, came up with the frigate program that substantially increases survivability, substantially increases lethality on this ship, while maintaining the modular concept, the open architecture so that as technology improves, we can improve. It is one of the critical programs as we go forward to meet the needs that we have.

The final thing I would say is that our deployments of this ship to Singapore have been very successful both in terms of operationally, both in terms of testing things in real-world environments and also in terms of reassurance to our allies and our friends in that region. Our plans continue to be to forward deploy four LCSs/frigates to Singapore.

Admiral RICHARDSON. Senator, the Secretary covered it pretty comprehensively. I would just add that this frigate plays a vital role in the fleet going forward in terms of contributing to maritime security in the fullest sense, operating alone in concert with allies and also operating as part of the large battle force. The enhancements that will go into this frigate will not only make that a much more lethal and survivable platform, but to the best of our ability, we will back-fit those into the other ships of the class so that we improve the capability of the whole class.

Senator NELSON. Admiral, in the pecking order of importance to the country, where do you put the dispersal of surface assets with regard to home ports so that you do not get them all in one place?

Admiral RICHARDSON. Sir, we go through a very comprehensive process called our Strategic Laydown Process which addresses that concern. We update that annually. Dispersal is a key part of that to make sure that all of our ships are placed around the world to not only maximize their utility but also to minimize their vulnerabilities. That dispersal is a very important aspect of that.

Senator NELSON. Is that why on the Pacific that you have three home ports for the carriers?

Admiral RICHARDSON. That would be one element of it. Yes, sir.

Senator NELSON. Why do we only have one home port instead of the two that used to be for our carriers on the Atlantic?

Admiral RICHARDSON. Yes, sir. Really the answer, based completely on a strategic laydown, I think would easily lead us to two home ports on the east coast for our aircraft carriers. When the fiscal situation allows us to appreciate the capital investment required to develop that second port, we look forward to achieving that.

Senator NELSON. Have you got any ideas when that might occur?

Admiral RICHARDSON. Sir, we are making some extremely tough choices in the current budget environment, and so as long as this type of an environment persists, it is going to be very difficult.

Senator NELSON. Well, at least the long lead item is done, and that is the dredging. You got that done all the way out, a mile and a half out, into the Atlantic.

Admiral RICHARDSON. Yes, sir.

Senator NELSON. Thank you, Mr. Chairman.

Senator REED. Thank you.

On behalf of Chairman McCain, Senator Sullivan, please.

Senator SULLIVAN. Thank you, Mr. Chairman.

Thank you, gentlemen for your service and testimony today.

I wanted to follow up on an issue that this committee has been very focused on and that is the activities in the South China Sea, what China is doing with regard to militarizing certain reefs, what we have been doing as part of our strategy. You know, Admiral Harris was testifying recently and talked about how China—he stated China had militarized these formations. As you know, Secretary Carter gave a very strong policy speech that many of us were out at the Shangri-La Dialogue in Singapore last year about American broader policy. I think that was very strongly supported by members of this committee on both sides of the aisle.

I think, though, there has been some sense of confusion by the implementation of that policy. Admiral Richardson, do you believe in your professional military opinion that we should be increasing the level of United States naval activity in the South China Sea within the 12-mile radius or zone of the militarization of some of these island formations? Should we be doing that on a regular basis and with some of our allies? I will leave it up to you or the Secretary.

If you can articulate—you know, there is some confusion sometimes. Is it innocent passage? Is it freedom of navigation operations? When we are going within the 12-mile zone, which we have on occasion, what has been the policy from the Navy's perspective?

Admiral RICHARDSON. Sir, I think just to reiterate what the President and the Secretary of Defense has said is the policy is that we will continue to advocate for the current international rules that govern behavior at sea and that we will continue to sail, fly, and operate wherever international law allows. That is worldwide. This freedom of navigation program is a worldwide program, but because of the activity and the importance of the South China Sea—30 percent of the world's trade goes through that body of water—and because of the activity of the Chinese, there has been a lot of attention there.

My advice is that we would continue to advocate for that, and we are ready to do more of those types of freedom of navigation operations in the South China Sea. When decision-makers are ready to do that, the Navy is ready to do that.

Senator SULLIVAN. Do we do those, for example, on a routine basis? Do we transit the Taiwan Strait now on a routine basis?

Admiral RICHARDSON. We do, yes, sir, that and other places. Wherever there are excessive maritime claims, part of program's purpose is to challenge those maritime claims.

Senator SULLIVAN. Let me ask just another quick question. It is a different part of the world, but there has been a lot of interest in this committee by members, not just myself, but on the Arctic and what is happening in the Arctic, how it is a very strategic location, how there are new sea lanes opening up. The Russians have undertaken a massive military buildup in that part of the world, not only for new BCTs [Brigade Combat Teams] and a new Arctic military command, but as you know, significant increases in icebreakers. They have 40. They are looking to add 12 more. We have two. One is broken.

If there was a policy decision made to do freedom of navigation operations in the Arctic or, alternatively, let us say the Russians with all their capability tried to shut down sea lanes in the Arctic in the summer when they are opening, do we even have the capability right now to conduct FONOPs [Freedom of Navigation Operations] in the increasingly important area of the Arctic with one and a half icebreakers?

Admiral RICHARDSON. Sir, it would depend on the conditions that are there. As you pointed out, that has become an increasingly strategic area of the world, one that we are focused on. As we do this renewed look at the demands and the force structure assessment to meet those demands this summer, the increasing strategic importance of the Arctic will be a key part of that.

Senator SULLIVAN. Are we looking at increasing maritime operations there, looking at perhaps the importance of an Arctic port. There are issues that I think can demonstrate America's resolve in an increasingly important area.

We have had discussions of how there is this battle between the Coast Guard and the Navy on who is in charge of icebreakers. But what it seems to do is just get us to the point of indecision, and we do not seem to be moving forward on it. Even the President, when he was in Alaska, talked about an icebreaker gap that we need to close, but we do not see the services kind of coming to any kind of agreement on why it is important or who is going to do it.

Admiral RICHARDSON. I think it is collaboration and cooperation between the Navy and the Coast Guard in terms of how we provide access and security in the Arctic. The icebreaker mission is clearly theirs, and I know Admiral Zukunft is focused on that very clearly.

Senator SULLIVAN. Well, they do not have the budget for a new icebreaker.

Admiral RICHARDSON. Sir, we are making hard choices in our budget as well.

Senator SULLIVAN. Again, I see this stalemate between the Navy and the Coast Guard on the issue of icebreakers. That is kind of demonstrated even by your testimony, Admiral.

Admiral RICHARDSON. Sir, I do not see it as a stalemate. This mission is clearly—right now, the icebreaker mission is a Coast Guard mission, and we look forward to collaborating and cooperating with them on that.

Senator SULLIVAN. Mr. Chairman, do I have time for one more question? Oh, I am sorry. I did not see Senator Blumenthal.

I just wanted to follow up on Senator McCain's question on the Iranian capture of our sailors. I know he already asked it, but you know, these are well trained American sailors. They have at least

a 50-caliber in terms of weapons on their naval vessels. What were the ROEs [Rules of Engagement] that enabled our sailors to even be captured? I mean, if a hostile Iranian patrol boat is approaching a United States naval ship in international waters, is the ROE not to not be captured? How did that happen?

Admiral RICHARDSON. Sir, clearly international law would prohibit boarding U.S. sovereign territory, which those riverine craft were.

Senator SULLIVAN. Did we try to resist being boarded?

Admiral RICHARDSON. There is always the inherent right to self-defense in our rules of engagement. The specific ROE and what exactly unfolded as that happened will be part of the detailed investigation. When that is complete and reviewed, I look forward to briefing you on the details there.

Senator SULLIVAN. Okay, thank you.

Thank you, Mr. Chairman. Thank you, Senator Blumenthal.

Senator REED. Thank you.

On behalf of Chairman McCain, Senator Blumenthal, please.

Senator BLUMENTHAL. I want to second all my colleagues in thanking each of you for your extraordinary service to our Nation over so many years and also your commitments in terms of undersea warfare capability to both the *Virginia* and *Ohio* replacement programs.

I know, Secretary Mabus, you have been asked this question before, but do we not need to consider building, in effect, three submarines a year, two *Virginia*-class and one *Ohio* replacement program? I would like you to perhaps clarify what you have said on this topic. I believe that Senator Ayotte may have asked you this question.

Mr. MABUS. Yes, we do. Right now, the plan is, starting in 2021 when the *Ohio*-class replacement begins to be built, we would drop to one *Virginia*-class that year. However, we are undertaking a look right now—and a pretty intensive look because we do think it is important to continue the two *Virginia*-class ships a year. It is a capacity issue, capacity for our shipyards, the ability to do it. It is a capability issue. But we clearly have the need for the two *Virginia*-classes.

Those boats are coming in at the cost they are, at the schedule they are, which is sometimes up to a year ahead of schedule because we are able to buy them two a year as a multiyear buy. As I mentioned to Senator Ayotte, this will be part of the 2018 budget submission. I am confident that that will go in there. We are trying every way we can, working with you, working with Congress to figure out a way to have that three submarine a year build because if we do not, if we miss a year on the Virginia, it is going to make the attack submarine situation, particularly in the late 2020s/early 2030s, even more significant.

Senator BLUMENTHAL. As I understand your answer, there is a need to build those three submarines a year, and the question really is whether the shipbuilders have the capacity. If they were to tell you—I am certainly not speaking for them—that they can do it, you would, in effect, make a decision to go forward, assuming that the funding is there because our national defense is well

served by it and because it would provide those boats at the lowest possible per-unit price.

Mr. MABUS. I think that is a very good summary. The shipyards—and that is what we are dealing with them now. We think they can have the capacity to do this so that little clause you put in, "assuming the funding is there," becomes the critical part.

Senator BLUMENTHAL. Admiral Richardson?

Admiral RICHARDSON. Senator, if I could just pile on a little bit there. Just from the warfighting need, as you know, sir, we dip below the stated requirement for 48 attack submarines in the 2020s. That boat, because it comes on line pretty early, if we get that in 2021, does a tremendous amount to mitigate the volume of that trough. It has a very asymmetric effect, which is why we are considering every possibility to get that done.

Senator BLUMENTHAL. When we talk about the need for a certain number of *Virginia*-class submarines and the need for the *Ohio* replacement program, this need is not an abstract, hypothetical, theoretical need. It is a matter of our potential adversaries building their own undersea warfare capability, particularly China and Russia moving ahead on their plans. Is that correct?

Admiral RICHARDSON. Sir, that is exactly correct. That number comes from, I believe, a 2006 study and we are refreshing that requirement this year as part of our force structure assessment, which takes into account those threats that you just mentioned.

Senator BLUMENTHAL. There is no reason to believe that the intentions of Russia and China, who are our most advanced competitors in this sphere, are in any way moderating or reducing their plans to build their undersea warfare capability.

Admiral RICHARDSON. Sir, that is our understanding. Yes, sir.

Senator BLUMENTHAL. Will that need also contemplate other means of undersea warfare capability besides submarines?

Admiral RICHARDSON. Sir, we are looking at the full host of undersea capabilities to include not only manned submarines, both the *Ohio* replacement and *Virginia*-class attack submarines. We are going to enhance the capability of the *Virginia*-class by putting in the Virginia payload modules starting in fiscal year 2019, and we are also looking at unmanned technologies undersea as well.

Senator BLUMENTHAL. I think I am the last questioner, but I want to close again by simply thanking you for your dedication to the submarine program, which means so much to our Nation, for your frequent visits to Groton. We would welcome you back anytime you are able to come. I will be extending invitations to you. I hope you can be there because we learn from your presence there, as well as from your commitment to this program. Thank you very much.

Senator REED. Thank you, Senator Blumenthal.

Gentlemen, thank you for your testimony. Thank you for your extraordinary service to the Nation and to the Navy and the Marine Corps.

On behalf of Chairman McCain, let me declare the hearing adjourned. Thank you.

[Whereupon, at 4:37 p.m., the hearing was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR MCCAIN

LCS WAY AHEAD

1. Senator MCCAIN. The President's Budget request includes a down-select to one Littoral Combat Ship variant no later than 2019 and to cap procurement at 40 ships. Can you explain the benefits of this program restructuring?

Secretary MABUS. and Admiral RICHARDSON. The Navy's requirement for 52 Small Surface Combatants was validated through the 2014 Force Structure Assessment (FSA) and no subsequent analysis has revised this requirement.

The truncation to 40 Small Surface Combatants reflects a consequence of the hard choices that had to be made to deliver the PB17 budget in compliance with the Bipartisan Budget Act. Secretary Carter concluded that the Navy could accept risk associated with slowing the rate of ship construction in the near term in order to rebalance its investments towards other warfare systems and advanced capabilities.

In accordance with Secretary Carter's decision, the Navy plans to competitively award one LCS to each shipbuilder in 2017, and proceed with completion of respective Frigate designs to support a competitive down-select to a single shipbuilder in 2018 based on the proposed Frigate design. This acquisition strategy sustains competition for the single ship awards in 2017 and delivers the desired Frigate capability ahead of the original, approved schedule. However, it is recognized that this down-select decision also places one of our shipbuilders and much of the support industrial base at risk of closure. The Navy will use this current period of stable production—prior to the down-select decision—to thoroughly assess the impact of such potential closure on our strategic shipbuilding industrial base, the cost of our shipbuilding program, and our ability to support in-service ships, in order to identify appropriate actions to mitigate these impacts to the extent practical.

OHIO-CLASS REPLACEMENT

2. Senator MCCAIN. In terms of program cost, the *Ohio* replacement submarine program will be second only to the Joint Strike Fighter. These submarines will carry about 70 percent of the nation's deployed nuclear warheads. If the *Ohio* replacement program turns into an acquisition debacle, the consequences will be dire for the Navy and for the Nation. What steps are you taking to ensure you get it right the first time with lessons learned from past acquisition experience, such as the CVN–78 aircraft carrier program, including: accurate cost estimating, technology maturity, avoiding concurrent design or development with production, off-ramps for high risk systems, and meeting reliability targets for critical systems?

Secretary MABUS. and Admiral RICHARDSON. The Navy recognizes the critical national importance of the *Ohio* Replacement (OR) program and is taking proactive steps to ensure that the program is successfully executed. Program measures include tight control over requirements, high degree of design completion prior to construction, maximum practical critical technology reuse, aggressive design for affordability program, detailed risk management program, extensive employment of engineering development models to retire risk, and continuous active review of program cost to enable timely course correction, if required. This will provide the Navy, the Department of Defense and the Nation confidence in long-term successful program execution.

The OR program commenced with significant effort to establish the right warfighting requirements for the program. In June 2015 the Chief of Naval Operations approved OR's Capabilities Development Document (CDD) defining the authoritative, measurable, and testable capabilities needed to perform the mission and in August 2015 the Joint Requirements Oversight Council validated OR's CDD. The program completed the Navy's Gate 4 in November 2015 to confirm that the proper requirements have been established for the technical baseline for steady design maturity. The OR program has instituted formal and rigorous change control to manage the program's technical baseline and ensure the requirements are maintained and controlled at the appropriate level.

Maximizing design maturity at the start of platform construction is a critical lesson learned from other shipbuilding programs. Increased design maturity will limit many of the complications that negatively impact both cost and schedule resulting from simultaneous design and production. To illustrate the effect of design maturity (i.e., drawings released to the shipbuilder) on various programs, the lead *Seawolf*-class submarine achieved design maturity of 6 percent, and the lead *Virginia*-class submarine reached approximately 43 percent at construction start. The target design maturity for OR is 83 percent at start of construction.

Technical maturity is another major focus area for the OR program and will reuse many of the proven technologies from both the *Virginia*- and *Ohio*-class programs.

It will also re-host the Trident D5 Strategic Weapon System, limiting the potential impact that immature transformational technologies could have on the program. The reuse of proven technologies mitigates technical risk and ensures a credible and survivable sea-based strategic deterrent.

To ensure maximum cost and schedule savings, the OR program has initiated prototyping and pre-construction testing of key systems. These efforts are critical to address potential technical risks and include the Strategic Weapons System Ashore in Cape Canaveral, Launcher Test Facility at China Lake, and the Compatibility Test Facility in Philadelphia for propulsion system testing. Manufacturing risk reduction prototyping, including the Missile Tube and its outfitting, Quad Pack of Missile Tubes and Missile Tube Module (MTM), is also in process.

The OR program will also leverage *Virginia's* extensive experience with modular construction. The *Virginia* program successfully improved schedule through modifying construction plans by using super-lifts, reducing 10 modules into 4. OR will implement a six super-module build plan based off the *Virginia* program to significantly reduce construction schedule and costs. The government, design yard, and shipbuilder are working together conducting detailed construction planning efforts to determine the optimal build sequence. The program is also continuing to identify opportunities to further acquisition efficiency, reduce schedule risk, and improve program affordability.

Credible detailed cost estimates are critical to the OR program's success to achieve the appropriate cost targets. The program established an initial lead ship cost estimate and affordability targets for follow-on ships in December 2010 in support of the Milestone A. An updated cost estimate, largely based on actual data from the *Ohio*- and *Virginia*-class programs, will be done to support the program's Milestone B decision in August 2016. The updated cost estimate will incorporate all cost reduction initiatives to date and adjust affordability targets if necessary.

The Navy is committed to recapitalize the nation's sea-based strategic deterrent by ensuring the right requirements are established and implemented, design maturity is maximized and the technical baseline is strictly managed. The program's incorporation of mature and proven technologies, prototyping initiatives, and focus on affordability, are integral to successful execution. These efforts will ensure the OR program is successful, assure our Nation's strategic deterrence and ensure best value for the American taxpayers.

NEXT AMPHIBIOUS SHIP (LX(R))

3. Senator McCain. The Navy's shipbuilding plan lists LX(R) as planned for a fiscal year 2020 authorization. To what extent could this ship be accelerated while still preserving competition and is acceleration to fiscal year 2019 reasonable? Would accelerating this ship to fiscal year 2018 result in a non-competitive, sole-source situation?

Secretary Mabus. The Department of the Navy plans to execute a competitive acquisition strategy for the LX(R) program. The Navy will review proposals leading to source selection for the lead ship in fiscal year 2018, award detail design and advance procurement in fiscal year 2019, and exercise the option for construction in fiscal year 2020. The Preliminary Design and Systems Engineering Technical Review have been completed and Contract Design efforts will begin shortly after contract award. Twelve months are required to complete Contract Design efforts in order to further refine and incorporate affordability initiatives into the design to meet both lead ship and average follow-on ship affordability targets. With the authority provided by Congress in the fiscal year 2016 NDAA which authorizes the use of Advance Procurement (AP) funding for design work and material, the Navy is evaluating opportunities for accelerating the detail design contract to late fiscal year 2018, as well as acceleration of the lead ship start of construction.

F–35

4. Senator McCain. Can you certify that all F–35s procured in fiscal year 2016 will be delivered with the full Block 3F capability, including hardware, software and weapons carriage?

Secretary Mabus. The F–35 program currently plans to deliver F–35A aircraft with full Block 3F capability (hardware, software and weapons) before the end of fiscal year 2017. However, before the Services can certify this, there are two challenges that must first be addressed: 1. Resolving F–35 BLK 3i software instability; and 2. Developing a suitable plan to complete the Weapons Delivery Accuracy (WDA) test and analysis in time for full weapon envelope and clearance. At this time, the Department of the Navy, in coordination with the Department of the Air Force and the F–35 Program Office are continuing to resolve these challenges. Once

the test results from the latest software stability fixes are known (late April 2016 timeframe) and the new weapons test plan is laid out, the F–35 Joint Program Office will be able to provide evidence to the Services for certification of Full Block 3F capability, and specifically, to the Secretary of the Air Force for F–35A aircraft procured in fiscal year 2016. This certification is expected in the early/mid-May 2016 timeframe.

MV–22

5. Senator MCCAIN. In your judgement, would procuring 16 MV–22 in fiscal year 2017 be in breach of the multi-year procurement contract which stipulates 18 aircraft would be procured? What would be the effect of procuring only 16 aircraft in fiscal year 2017?

Secretary MABUS. The quantity reduction of two aircraft in fiscal year 2017 would breach the terms and conditions of the MYPII contract in its final year. This would effectively create a partial termination for convenience of the contract to which Industry would have the ability to seek compensation. Two mitigation strategies are in-work. The first is an fiscal year 2017 Unfunded Priority List (UPL) request for two aircraft. Second is the opportunity to replace the two aircraft with pending international orders from Japan and/or an fiscal year 2016 CV–22 plus up aircraft by the United States Air Force. The Government of Japan's request for four aircraft is anticipated by March 2016. The program office intends to exercise the MYPII Fiscal Year 2016 Variation in Quantity contract clause by June 30, 2016.

The impact to cost and schedule resulting from an fiscal year 2017 reduction of two aircraft is unknown at this time. A partial termination for convenience proposal from industry and dialogue with industry would be required to assess the specific impacts. The areas of impact would include Overhead/Labor rates, direct/indirect labor and material, and termination costs for: Economic Order Quantity components, Long Lead components, and suppliers. A preliminary assessment from within the government indicates a minimum of a $17 million cost impact resulting from a termination of two aircraft without consideration of possible alternatives to mitigate these impacts. The program office has engaged with industry on the viability of replacing the two aircraft of concern with potential international requirements from Japan with generally favorable response. However this mitigation is contingent on a Japan procurement case that is not anticipated before June 2016. The contractual commitment for full funding of the fiscal year 2017 MYPII procurement is by December 31, 2016.

CARRIER AIR WING

6. Senator MCCAIN. The Navy has indicated that the long periods between deployments for some carrier air wings is one reason the Navy would like to deactivate one air wing. Has the Navy considered deploying air wings, in whole or in part, in an expeditionary manner to alleviate long periods between deployments. Why or why not?

Admiral RICHARDSON. The Carrier Air Wing is tailored for maximum effectiveness when employed as an integrated warfighting unit in conjunction with a Carrier Strike Group (CSG) complement of warships. However, there are some instances where Carrier Air Wing assets can be employed in an expeditionary manner. The Navy currently employs electronic attack, helicopter, and strike fighter assets in support of individual unit deployment programs and the Department continually evaluates all opportunities to best support combatant commander demand.

QUESTIONS SUBMITTED BY SENATOR SENATOR AYOTTE

INDUSTRIAL BASE—DEPENDENCY ON SOLE SOURCE SUPPLIERS

7. Senator AYOTTE. To what degree are key programs in the Navy dependent on sole source suppliers?

Admiral RICHARDSON. In the context of major weapon systems procurement (e.g., MDAPs), the Navy is dependent on sole source suppliers to the extent we are unable to establish a viable competitive environment throughout the entire life cycle of a particular program. Major weapon systems are very complex—the costs to design and develop the weapon system, as well as to establish and qualify a manufacturing source can be considerable—often exceeding several billion dollars. Therefore, while initial design and development efforts are commonly contracted using full and open competitive procedures, once a source is selected, that source is typically the only viable source through the production and manufacturing phase of the program. This is due to the high investment costs required to become a duplicate manufacturing

source; typically so large as to preclude other members of industry from making a return on that considerable investment.

QUESTIONS SUBMITTED BY SENATOR SULLIVAN

FONOPS IN THE ARCTIC

8. Senator SULLIVAN. If a policy decision was made to do so, does the U.S. Navy currently have the capability to conduct surface FONOPs in the Arctic? Specifically, under what sea-ice conditions can FONOPs of all types be conducted or not conducted?

Admiral RICHARDSON. The Navy's surface combatants are currently not designed to operate in sea-ice conditions. Surface combatants participate in Arctic and sub-Arctic exercises, but they are not ice-hardened and operate only in open water conditions found in limited areas during the summer melt season. In any Arctic operation there are many environmental risk factors including sea ice, wind, ice accumulation on equipment, and impacts to communications and satellite coverage. Therefore, surface ship operations, including FONOPS, will be limited to open water conditions and executed only after a rigorous assessment of the operating environment and application of the principles of operational risk management (ORM).

9. Senator SULLIVAN. With only two aging icebreakers—one medium one and one heavy one that is always deployed to Antarctica—what are the risks to U.S. Naval vessels to conducting surface FONOPs in the Arctic without icebreaker support?

Admiral RICHARDSON. The Navy's surface combatants are not designed to operate in sea-ice conditions. Surface combatants participate in Arctic and sub-Arctic exercises, but they are not ice-hardened and operate only in open water conditions found in limited areas during the summer melt season. In any Arctic operation there are many environmental risk factors to consider. Risk factors include sea ice, wind, ice accumulation on equipment, and impacts to communications and satellite coverage.

After assessing all risk factors associated with operating in the Arctic extremes, a combatant commander would require extraordinary circumstances before directing a Naval Component Commander to conduct a FONOP with a surface vessel in conditions where ice breakers would be required.

10. Senator SULLIVAN. Given Russia's increased aggressiveness across the globe and their militarization of the Arctic, including their recent investments in icebreakers and Arctic ports, is our deficiency in icebreakers a capability gap for the U.S. Navy, current and in the future, for future U.S. involvement in the Arctic? How does this capability gap affect U.S. Arctic strategic interests?

Secretary MABUS. and Admiral RICHARDSON. The current U.S. deficiency in icebreaker capability is not a capability gap for the U.S. Navy for current and future Navy operations in the Artic. The U.S. Navy has no defense requirement for polar icebreaking capability. U.S. Navy defense requirements for operational forces in the Artic are currently provided by its undersea and air assets. The Navy's existing posture is appropriate to address the near-term defense requirements of the U.S. in the Artic. Moreover, no combatant commanders have identified a requirement for icebreaking capability.

The national requirement for this capability is provided by the U.S. Coast Guard. The U.S. Navy supports the U.S. Coast Guard's request for moedernization of the national icebreaking capability. U.S. national interests from a defense perspective are not affected by this icebreaker capability gap. From a non-defense perspective, this capability gap affects U.S. national interests in the Arctic regarding:

- the conduct and support of scientific research,
- the protection of U.S. economic interest in the U.S. Exclusive Economic Zone
- the conduct of search and rescue law enforcement and protection of marine resources.

11. Senator SULLIVAN. Do you agree that we need a more robust Arctic strategy—one that does a better job of assessing the new threats in the region and one that reflects Russian as a potential adversary?

Secretary MABUS. The National Strategy for the Arctic Region, the Department of Defense Arctic Strategy, the U.S. Coast Guard Arctic Strategy, and the Navy Arctic Roadmap remain valid and relevant strategies that have guided our security and safety efforts to date. Additionally, Arctic nations have demonstrated a desire to leverage existing international frameworks to resolve disputes peacefully. As directed by section 1068 of the National Defense Authorization Act for Fiscal Year 2016, the

Department of Navy is prepared to work with the Department of Defense on the update to their Arctic Strategy.

12. Senator SULLIVAN. Secretary Mabus, do you agree that the Navy should relook and potentially rewrite the Navy's 21st Century Arctic Roadmap following the completion of the new DOD Arctic Strategic, required in section 1068 of the fiscal year 2016 NDAA?

Secretary MABUS. The U.S. Navy Arctic Roadmap 2014–2030 remains aligned with National and DOD strategies and outlines the U.S. Navy's strategic approach to the Arctic region in step with changing environmental conditions. While balancing all of our global defense responsibilities, the Navy will continually assess our preparedness in response to changes in the Arctic environment or changes in the security environment.

QUESTIONS SUBMITTED BY SENATOR MCCASKILL

F/A–18 INVENTORY

13. Senator MCCASKILL. You've stated the Navy has a strike fighter inventory issue. Last year, the President's Budget requested no funding to procure Super Hornets, yet the Congress funded five Super Hornets in the fiscal year 2016 Omnibus. This year the Navy is requesting two Super Hornets and projects requesting 14 Super Hornets in the fiscal year 2018 request. The Navy has also included a request for 14 Super Hornets as their number one priority on this year's Unfunded Requirements List. Why has the Navy made F/A–18s the number one priority on its unfunded requirement request?

Admiral RICHARDSON. The Department of the Navy (DON) remains challenged with end of life planning for F/A–18 aircraft that reach the end of their service life before replacement aircraft (F–35B/C) are delivered into service. The near-term challenge is due to a combination of reduced strike fighter aircraft procurement, higher than planned TACAIR utilization rates, and F/A–18A–D depot production falling short of the required output. The mid-term challenge encompasses F/A–18E/F service life extension efforts to sustain inventory capacity to meet warfighting requirements. In the far-term, inventory capacity is predominantly affected by new aircraft procurement, particularly the F/A–18E/F and F–35.

Although the fiscal year (FY) 2017 President's Budget request takes many steps towards addressing the gap between aircraft supply and the Department's Master Aviation Plan demand with legacy aircraft sustainment, new aircraft procurement, and fleet utilization, an additional 14 aircraft in fiscal year 2017 will reduce risk in the near-term, and address a long-term inventory shortfall by assuring aircraft with useful life into the 2030s. I have included these additional aircraft as the number one priority on this year's Unfunded Priorities List to highlight the need to address this critical gap in warfighting requirements.

14. Senator MCCASKILL. Why did you make the decision to signal that you will request 14 Super Hornets in your fiscal year 2018 request?

Admiral RICHARDSON. The Fiscal Year 2017 President's Budget request continues to address the requirement for an additional two to three operational squadrons of F/A–18E/F aircraft to sustain the strike fighter inventory. Congressionally authorized and appropriated aircraft in fiscal year (FY) 2016 begin to reduce the shortfall, but nonetheless the Department of the Navy (DON) is still experiencing risk in our Strike Fighter Inventory Management strategy.

The additional aircraft will reduce risk in near and mid-term inventory capacity as we begin to assess service life extension requirements to sustain the F/A–18E/F inventory into the future. The aircraft requested in the base budget, Overseas Contingency Operations (OCO) budget, and Unfunded Priority List (UPL) would alleviate near-term demand on the F/A–18E/F Super Hornet fleet which has experienced higher than planned utilization in support of current operations.

Furthermore, as we study the service life extension plan for the F/A–18E/F Super Hornet fleet, current forecast models predict Out Of Reporting (OOR) figures will exceed what was originally expected, inducing additional risk to inventory management.

The F/A–18E/F Super Hornet will be the mainstay of the Navy's strike fighter force into the 2030's. Accordingly, the DON has requested the continued procurement of these aircraft to simultaneously maintain operational readiness and reduce risk in our strike fighter inventory.

15. Senator MCCASKILL. What will be the effect on future Navy operations if Congress does not approve funding for the 14 Super Hornets on the fiscal year 2017 Unfunded Requirements List?

Admiral RICHARDSON. The Navy will be unable to close the gap between inventory capacity and operational demand without Congress' support for additional F/A–18E/F aircraft. These aircraft alleviate near-term overutilization challenges with the existing Super Hornet fleet and decrease risk in the F/A–18E/F service life extension plan by improving F/A–18E/F pipeline aircraft availability.

16. Senator MCCASKILL. What will be the effect on future Navy operations if Congress does not approve funding for the 14 Super Hornets you plan to request in the fiscal year 2018 budget?

Admiral RICHARDSON. The Navy will be unable to close the gap between inventory capacity and operational demand without Congress' support for additional F/A–18E/F aircraft. These aircraft alleviate near-term overutilization challenges with the existing Super Hornet fleet and decrease risk in the F/A–18E/F service life extension plan by improving F/A–18E/F pipeline aircraft availability.

DEFENSE ACQUISITION REFORM

The National Defense Authorization Act of 2016 required each of the Service Chiefs to review their individual defense acquisition authorities and make recommendations to the Armed Services Committees changes they believe are necessary to strengthen their role in the development of requirements, acquisition processes, and budget practices.

17. Senator MCCASKILL. Based on your review, do you have any recommendations to improve the management of the Navy acquisition workforce?

Admiral RICHARDSON. Acquisition involves professionals in the areas of requirements generation, program management, and financial management. The three areas are critical in ensuring we define, resource, and deliver the needed capability to our warfighters. The training and development pipelines for our program management and financial management workforce are well defined and well managed. Congress has been instrumental in providing tools to strengthen our program management workforce by providing the Defense Acquisition Workforce Development Fund (DAWDF) (enacted in fiscal year 2008) and the Acquisition Demonstration performance management system (Acq Demo). DAWDF is now an enduring fund and authorities for Acq Demo have been extended through fiscal year 2020 so we can demonstrate the value of this tool and consider extension or permanence. I am working with my leadership team on professionalizing our requirements generation workforce. I do not anticipate additional authorities needed at this time.

18. Senator MCCASKILL. Based on your review, do you have any recommendations to improve the management of the Marine Corps acquisition workforce?

General NELLER. This is an interim reply. We will follow-up with a completed response no later than 25 May by submitting our Report to Congress under the National Defense Authorization Act for fiscal year 2016. Specifically, this refers to section 808, Report on Linking and Streamlining Requirements, Acquisition and Budgets Processes of the Armed Services. The report will include recommendations to Congress to increase funding flexibility and stability, consider ideas to effect protest reform, and streamline oversight. It will also provide details on the following discussion.

The Marine Corps continues to implement management actions that integrate and synchronize our capability and material developers while resourcing staff and their processes. These processes, and the people who manage and execute them, can make key differences individually or collectively in our modernization programs. We will also undertake a comprehensive review of our acquisition workforce structure with a focus on our military acquisition professionals as well as civilian leadership. We are looking closely at the new roles and relationship of the Principal Military Deputy, established in section 802, NDAA fiscal year 2016. We will define a more detailed understanding of how this works for the CMC and our leadership team, including the requirements, acquisition and budget process owners. Related to the workforce review, we will evaluate how best to sustain the momentum of focus on and improvement to our processes. This evaluation is to produce an institutional solution for sustained acquisition improvement, including all associated supporting and supported processes.

We look forward to providing a more in-depth and comprehensive answer next month.

F–35 JOINT STRIKE FIGHTER

19. Senator KAINE. Both the Marine Corps and the Air Force have conducted their Environmental Impact Studies (EIS) for their F–35 basing plan. In light of the continued requests by the Administration to conduct a BRAC, an indication of your basing plan would be beneficial. Could you provide a rationale as to why the Navy has not yet conducted a study? When does the Navy anticipate it will conduct an EIS?

Secretary MABUS. The Department's F–35 procurement plan determines the timeline for basing action. In line with the rebalance to the Pacific, the Department completed the F–35C West Coast home basing actions first. In 2014, Navy selected Naval Air Station Lemoore as the future West Coast home base for F–35C squadrons after the preparation of a West Coast EIS. Military construction projects are currently underway to support the first F–35C arrival in January 2017.

The Navy is currently developing future basing requirements for 2022 and beyond. East Coast basing actions will follow consistent with other aircraft home basing efforts. Once requirements are established, the basing decision process will include an EIS. The EIS along with required construction will take several years. Based on this timeline, the Navy will not begin the EIS process prior to fiscal year 2018 and may begin later depending on the F–35 procurement plan.

UNFUNDED PRIORITIES LISTS

20. Senator KAINE. Please provide your services prioritized, unfunded priorities list.

General NELLER. Attached is the Marine Corps' prioritized, unfunded priority list.

FY 2017
Marine Corps UPL
Prioritization as of 25 March 2016

Tranche	CMC Rank	Cat	Title of UPL Submission	APPN	Total
1	1	Readiness	Exercise Program Shortfalls	OMMC	58,000
	2	Readiness	Maintenance Shortfalls	OMMC	47,200
	3	Readiness	Facilities Sustainment to 90%	OMMC	121,387
	4	Readiness	Facilities Sustainment to 90%	OMMCR	4,075
	5	MCN Miramar - JSF	Aircraft Maintenance Hangar MCAS Miramar, CA	MCN	118,900
	6	MCN Miramar - JSF	F-35 Aircraft Parking Apron MCAS Miramar, CA	MCN	40,000
	7	MCN Miramar - JSF	Comm Complex & Infrastructure Upgrade MCAS Miramar, CA	MCN	34,700
	8	Readiness	Facilities Demolition	OMMC	39,200
	9	Readiness	Depot Maintenance	OMMC	7,800
	10	Readiness	SPMAGTF En-route C4 UUNS	APN	39,390
				OMMC	8,250
				PMC	40,480
	11	Readiness	POM 17 Buy Back - Bachelor Enlisted Quarters NWS Yorktown, VA	MCN	24,200
	12	Readiness	Over The Snow (OTS) Mobility for Marine Corps Mountain Warfare Training Center (MCMWTC)	OMMC	58
				PMC	6,110
1 Total					**589,750**
2	13	Buy Back	POM17 Buy Back - PCS	MPMC	49,000
	14	Buy Back	POM 17 Buy Back - Foreign Language Proficiency Bonus Pay	MPMC	8,000
	15	Buy Back	POM17 Buy Back - MV-22	APN	150,000
	16	Buy Back	POM17 Buy Back - KC-130J Operation Tomodachi Engine RADCON	APN	36,000
	17	Buy Back	POM17 Buy Back - KC-130J Operation Tomodachi Engine RADCON	OMN	6,800
	18	Enhancements	F-35B Spares	APN	50,800
	19	Enhancements	KC-130J Aircraft	APN	158,000
	20	Enhancements	C-40 as C-9 Replacements	APN	207,500
	21	Enhancements	AH-1Z	APN	57,000
	22	Enhancements	UC-12W	APN	32,600
	23	Enhancements	Enhanced Combat Helmet (ECH)	OMMC	22,000
	24	Enhancements	Lightweight 155mm Chrome Tubes	PMC	14,000
	25	Enhancements	CESAS II	PMC	7,054
	26	Enhancements	DoD Enterprise Network Defense Technologies Integration and Sustainment (HBSS/ACAS)	OMMC	5,689
	27	Enhancements	Full Spectrum Cyber Operations	PMC	7,104
	28	Enhancements	Full Spectrum Cyber Operations	RDTEN	1,784
	29	Enhancements	Rifle Combat Optic Modernization	OMMC	13,281
	30	Enhancements	Identity Intelligence (I2)	OMMC	1,230
	31	Enhancements	Force on Force Training Systems (FoFTS)	PMC	3,400
	32	Enhancements	Joint Processing, Exploitation, and Dissemination (JPED) Center	OMMC	1,855
	33	Enhancements	Open Source Intelligence (OSINT)	OMMC	830
	34	Enhancements	GMLRS AW munition for HIMARS	PMC	19,290
	35	Enhancements	Broadband Meshable Data Link (BMDL)	PMC	2,500
	36	Enhancements	Master Reference Terminals (MRT)	PMC	315
	37	Enhancements	Unified Command suite Block 2	PMC	689
	38	Enhancements	Selective Reenlistment Bonus (SRB)	MPMC	18,600
	39	Enhancements	KC-130J Digital Interoperability Block7 (LINK16, CNS ATM, Long Range Navigation mandates) kits	APN	20,800
	40	Enhancements	Procure 2XF-35B and 2XF35C	APN	750,000
2 Total					**1,646,121**
3	41	Enhancements	Defense Systems LAIRCM/DAIRCM/APR-39DV2	APN	100,400
	42	Enhancements	APKWS II F/A-18A-D Capability	APN	25,900
	43	Enhancements	CH-53E Degraded Visual Environment (Brown Out) landing enhancements	APN	13,300
	44	Enhancements	H1 Technical Refresh Mission Computer (TRMC) Retrofit	APN	23,400
	45	Enhancements	AH-1Z Digitally Interoperable Full Motion Video (DI-FMV) kits	APN	5,400
	46	Enhancements	MV-22 Aft Sponson Fuel Tank	APN	5,000
	47	Enhancements	MV-22 Proproter Blade Erosion Mitigation	APN	21,000
	48	Enhancements	Increases carry capacity of GBU (Bombs) from 1 to 4 for F-18 A-D (BRU55)	RDTEN	10,400
	49	Enhancements	20mm High Explosive Incendiary (HEI) Point Detonating (PD) Round for soft targets	RDTEN	9,300
	50	Enhancements	V-22 Joint Performance Based Logistics (JPBL) Support-Improve Supply Support	OMN	5,410
	51	Enhancements	CTN-Common Block Array-Antenna (CAB-E)	RDTEN	1,400
	52	Enhancements	JSF-Tactical-Special Access Program Shelters	APN	1,000
	53	Enhancements	Link-16 (Digital Interoperability) for ATNAVICs	OPN	1,000
	54	Enhancements	"Critical/No Fail" EOD Mission Equipment	OMMC	550
	55	Enhancements	"Critical/No Fail" EOD Mission Equipment	PMC	21,300
	56	Enhancements	Consolidated Emergency Response System	PMC	1,000
	57	Enhancements	Enlisted Bachelor's Quarters: FMTB-E MCB Camp Lejeune, NC	MCN	40,700
	58	Enhancements	Installation Emergency Management (IEM)	OMMC	4,400
	59	Enhancements	Installation Security Systems	PMC	2,200
	60	Enhancements	Installation Security Systems	PMC	4,000
	61	Enhancements	SECNAV Task DoN Talent Management Initiative Extending Gym Hours	OMMC	3,300
	62	Enhancements	Common Analytical Laboratory System (CALS)	PMC	352
	63	Enhancements	Enterprise Development and Test Environment (EDTE)	OMMC	734
				PMC	1,902
	64	Enhancements	IAMs for Rigid Shelters	OMMC	4,325
	65	Enhancements	Target Handoff System	PMC	38,400
	66	Enhancements	Technical Surveillance Countermeasures (TSCM)	PMC	22,770
	67	Enhancements	NGEN	PMC	8,965
	68	Enhancements	Application Server Modules (ASM)	PMC	150
	69	Enhancements	Rapid response Kit (RRK) Terminals	PMC	4,600
	70	Enhancements	Nano/VTOL Small Unmanned Aircraft Systems (UUNS)	OMMC	14,200
	71	Enhancements	RQ-21 Blackjack TIPS BLK III	PMC	8,960
	72	MCN Buy Back	POM 17 Buy Back - LHD Pad Conversion & New MV-22 LZ's MCB Hawaii, HI	MCN	12,800
	73	MCN Buy Back	POM 17 Buy Back - Combat Vehicle Repair Facility MCLB Barstow MCLB Barstow, CA	MCN	35,500
	74	MCN Buy Back	POM 17 Buy Back - Enlisted Dining Fac & Community Bldgs MCAS Yuma, AZ	MCN	34,500
	75	MCN Buy Back	POM 17 Buy Back - TBS Fire Station MCB Quantico, VA	MCN	17,200
3 Total					**505,718**
Grand Total					**2,741,589**

Admiral RICHARDSON. Attached is my fiscal year 2017 unfunded priorities list.

Enclosure 1: Navy's FY 2017 Unfunded Priorities List

Priority	Unfunded	Appn	TY$M
1	F/A-18E/Fs (+14 Aircraft)	APN	1,540
2	Final Increment of DDG 51 Partially Funded in FY16	SCN	433
3	F-35C (+2 Aircraft)	APN	270
4	RF Kill Chain Enhancements (+99 Counter Electronic Attack (CEA) Blk II Kits)	OPN	81
5	SEWIP Blk III (+1 system)	OPN	23
6	SSEE Inc. F (+3 Systems) and Paragon/Graywing (+3 Systems)	OPN	43
7	MK-54 Mod 0 Lightweight Torpedoes (+23 torpedoes)	WPN	16
8	AIM-9X Sidewinder Missiles Blk II (+75 missiles)	WPN	33
9	Joint Direct Attack Munitions (JDAM) Components	PANMC	58
10	DDG BMD/NIFC-CA Modernization (+1 combat system)	OPN	65
11	LCS Over-the-Horizon Missile (LCS 3 and LCS 5)	WPN/OPN	43
12	Submarine Towed Arrays (+4 TB-29X and +4 TB-34X Arrays)	OPN	22
13	Surveillance Towed Array Sensor System (SURTASS) Array	OPN	10
14	Partial CG Modernization ship set (Restoration of ship set used for CG 62 repair)	OPN	70
15	Submarine Warfare Federated Tactical Systems (SWFTS) for SSNs (+2 Sets)	OPN	49
16	Afloat Readiness (Aviation & Ship Depots, Ship Support and OPTAR)	OMN	645
17	Condition-Based Maintenance (CBM) for Critical Building Systems (ST to 90%)	OMN	382
18	Fleet priority Restoration and Modernization (RM) special projects	OMN	262
19	CANES Acceleration (LPD 19 and DDG 73)	OPN	53
20	Ship to Shore Connector (SSC) (+3 craft)	SCN	165
21	LCU 1700 (+ 1 craft)	SCN	22
22	PCS Funding (Restores 15,000 PCS moves reduced due to BBA limits)	MPN	156
23	Shore Support (Physical Security Equipment and Environmental Restoration)	OMN/OPN/ER	68
24	Remediation of system and process deficiencies in support of auditability	OMN	44
25	Replacement of R-SUPPLY program in support of auditability	OMN	10
26	Critical Aviation and Test Facility Upgrades (range and test facility hangars)	RDTEN	12
27	Full Scale Aerial Targets (FSAT) (QF-16) (+5 targets)	RDTEN	26
28	High Speed Maneuverable Surface Target (HSMST) (+56 targets)	OPN	10
29	Training Ranges - Barking Sands Tactical Underwater Range	OMN	9
30	C-40A (+2 Aircraft) (Reserve's personnel and cargo aircraft)	APN	207
31	T-ATS(X) (+1 Ship)	SCN	75

Priority	MILCON Unfunded	Appn	TY$M
1	NS Norfolk / Chambers Field Magazine RECAP Phase 1 MILCON Project (P-495)	MCN	27
2	SEAWOLF Class Service Pier-Bangor MILCON (P-834)	MCN	73
3	A-School Dormitory (P-711, Pensacola, FL) (QOS investment)	MCN	53
4	Advanced Wastewater Treatment Plant MILCON Project (P-663, Mayport, FL)	MCN	66

F/A-18E/F *Super Hornet* Fighter Aircraft (+14 Aircraft)

Strike Fighter Inventory Management continues to be challenged with end-of-life planning for F/A-18A-D legacy aircraft, the requisite integration of F-35C aircraft, overutilization of current aircraft due to high operational tempo, and aviation depot maintenance backlogs. Although the FY 2017 President's Budget (PB-17) takes many steps towards addressing the gap with legacy aircraft sustainment, new aircraft procurement, and fleet utilization, an additional 14 aircraft in FY 2017 will reduce near-term Strike Fighter shortfalls, and address a long term inventory shortfall by assuring aircraft with useful life into the 2030s.

Final Increment of DDG 51 Partially Funded in FY 2016
The FY 2016 Appropriations Act provided $1 billion to support procurement of an additional DDG 51 to the FY 2013-2017 10-ship multi-year procurement contract. To complete procurement, an additional $433 million is required. This additional DDG would increase large surface combatant capacity and drive cost reductions to the remaining ships in the multi-year procurement contract.

F-35C Lightning II JSF Aircraft (+2 Aircraft)
The F-35C, with its advanced sensors, data sharing capability, and ability to operate closer to threats, will enhance the carrier air wing's ability to find targets and coordinate attacks. Two additional aircraft in FY 2017 will level the FY 2016-2018 procurement ramp and continue to mitigate the strike fighter shortfalls as we transition to and integrate F-35C aircraft.

RF Kill Chain Enhancements (+99 Counter Electronic Attack-Block II Kits)
Air-to-Air Radio Frequency (RF) Kill Chain kits provide aircraft the ability to counter sophisticated digital weapons and combat systems proliferated around the world today. These additional kits will restore a deferment in our PB-17 budget due to the FY 2017 Bipartisan Budget Act of 2015 (BBA) reduction, allowing the outfitting of two carrier air wings.

SEWIP Block III Advanced Electronic Detection Systems (+1 Unit)
The Surface Electronic Warfare Improvement Program (SEWIP) Block III provides for upgraded electromagnetic sensing and electronic attack capabilities for surface ships. The additional unit will increase FY 2017 procurement from two to three systems, providing increased shipborne Electronic Attack and counter targeting capabilities.

SSEE Increment F (+3 Systems) and Paragon/Graywing (+3 Systems)
The Ship's Signal Exploitation Equipment (SSEE) system and Paragon/Graywing system increase Information Warfare (IW), Information Operations (IO), non-kinetic, and subsequent tactical cryptologic capabilities. These additional systems would restore a FY 2017 reduction due to the BBA.

MK-54 Mod 0 Lightweight Torpedoes (+23 torpedoes)
The additional MK-54 torpedoes would restore a 2017 reduction due to the BBA and return the procurement profile to the minimum sustaining rate (MSR) of 137 torpedoes.

AIM-9X Sidewinder Missiles Block II (+75 missiles)
The additional AIM-9X missiles would restore the FY 2017 procurement levels and address shortfalls to the AIM-9X Block II Pre-Combat Loadout (Pre-CLO) requirement.
Joint Direct Attack Munitions (JDAM) Components (GP Bombs)
The additional funding will procure General Purpose (GP) Bomb components to return to Combat Requirement levels. Current combat operations are expending assets at a rate that will cause the 500 lb JDAM current inventory (with PB-17 funding) to approach zero in FY 2019.

DDG 51 BMD/NIFC-CA Modernization Package (+1 Combat System)
Procuring one DDG 51 combat system ship set in FY 2017 will allow us to modernize an additional ship in FY 2019, increasing our capacity to meet Combatant Commander Ballistic

Missile Defense (BMD) demand and provide Naval Integrated Fire Control – Counter Air (NIFC-CA) capabilities needed to counter advanced missiles and strike fighter aircraft. This will improve our ability to pace the threat against a high-end adversary weapons system, particularly in Anti-Air Warfare and BMD mission areas.

LCS Over-the-Horizon Missile (for LCS 3 and LCS 5)
Since submission of the PB-17 budget, the Navy has decided to accelerate the backfitting of Over-the-Horizon missiles on LCS ships to improve their lethality. This funding would procure eight missiles (4 per ship) and launcher installation, integration, and testing to allow outfitting of LCS 3 and LCS 5 in FY 2017 prior to their next deployment.

Submarine Towed Arrays (+4 TB-29X and +4 TB-34X Arrays)
The submarine towed array system improves detection, classification and tracking capabilities for deployed *Virginia*-class SSN. Accelerating procurement by four additional TB-29X and four additional TB-34X arrays will improve operational availability of advanced towed sensors and flexibility of operational forward deployed submarines. It will also increase spares inventory to improve towed array reliability and provide sufficient assets to equip deployed submarines with improved arrays.

Surveillance Towed-Array Sensor System (SURTASS) Array (+1 Array)
An additional array will increase operational availability of ready spares to outfit Pacific Fleet assets. This funding will procure the array, tow cable, shipboard operating and support equipment, and ship allowance for spare modules.

Partial CG Modernization Ship Set (Restoration of ship set used for CG 62 repairs)
This additional funding would restore components of a CG modernization ship set that was partially used for emergent repairs to the USS Chancellorsville (CG 62) due to an exercise collision with an unmanned drone. The funding would restore the ACB-12 shipset, as well as other components (e.g., 5" gun, Navy Multi-Band Terminal, All Electric mods, CANES).

Submarine Warfare Federated Tactical Systems (SWFTS) for SSNs (+2 Sets)
The additional submarine combat system upgrades will accelerate system improvements on two SSN submarines and improve submarine mission execution and safety of ship.

Afloat Readiness (Aviation& Ship Depots, Ship Support and OPTAR)
Several Operations and Maintenance accounts were reduced due to the BBA. This will restore funding to the following priority accounts:

- Aviation Depot Maintenance - $34M – Supports additional airframe and engine overhaul, repair, and maintenance events.
- Aviation Logistics - $16M – Funds E-6B and F-35 sustainment contracts.
- Ship Depot Support - $79M – Funds will impact all ship support programs and prevent degraded support for depot maintenance planning and execution.
- Ship Operations (OPTAR) - $158M – Funds will reduce the number of open casualty reports on surface ships.

- Ship Depot Wholeness - $238M – Fact of life changes since PB-17 budget submission. $188M due to changes in all Fleet CNO availability durations and man-days. $50M due to changes in overtime rate from 12% to 15% to manage additional workload.
- PONCE Operations & Sustainment - $59M – Funds PONCE operations through FY 2017.
- Fully fund three CG Deployments - $41M – Based on the recently finalized GFMAP, three CGs planned for induction into phased modernization will now be deployed through the end of FY 2017. The PB-17 budget only included half-year funding for the FY 2017 inducted ships. This funding will provide the remaining half-year funding for these three ships to meet FY17 deployment and operational requirements.
- Ship Support - $20M – Restores funding to ship level maintenance programs that enable ship's force to affect repairs at the lowest level (such as the 3M and PQS Programs) and funding for logistics support for ships away from homeport.

Condition-Based Maintenance (CBM) for Critical Building Systems (ST to 90%)
This additional investment will arrest growth of deferred sustainment in all buildings and address the backlog of deferred sustainment of critical systems in critical buildings, enabling the Navy to meet the Office of the Secretary of Defense (OSD) sustainment funding goal of 90% of the Facilities Sustainment Model.

Fleet priority Restoration and Modernization (RM) special projects
Special projects include:

- Repairs to address necessary improvements to submarine moorings in Guam (heavy weather mooring repairs at Alpha Wharf) and flight safety issues at Pax River and Oceana, along with structural issues associated with the Aegis RDT&E facilities at Wallops Island.
- Repairs to runways 14-32 and 06-24 Pax River and runways T1-T4 and T6-T8 circuits NSA Andersen; Aegis facility foundation and crawl space repairs, Little Creek; Modernization of airfield lighting NAS Oceana; Phase 1 structural repairs to the Indian Island; Ammunition pier repairs to Poseidon Wharf, NOTU, Port Canaveral; Repairs to communication center NAS Sigonella; Critical building repairs to C4I facility Rota.
- Repairs to FRC MA hydraulic shop, NAS Oceana; Mike and November Wharfs, Guam; DD6 capstans, Yokosuka; and Repairs to training facility NS Norfolk.
- Repairs to address necessary structural improvements to piers, and facility repairs to hangar and training facilities and an aircraft parking apron.
- Funds Hangar 404 repairs, NAS Oceana; Rickover Hall repairs, USNA; Phase 2 structural repairs to ammunition pier, Indian Island; and Aircraft parking apron repairs, Norfolk.

CANES Acceleration (LPD 19 & DDG 73)
Accelerates CANES fielding on LPD-19 (Install) and DDG 73 (Tech Refresh) to replace legacy networks and improve the cybersecurity posture on afloat naval platforms.

Ship to Shore Connector (SSC) (+3 craft)
Three of five SSCs were cut in FY 2017 due to BBA balancing. This funding restores procurement to 5 craft, providing enhanced opportunities for Economic Order Quantity (EOQ) savings, as well as avoiding costly sustainment funding on aged LCAC.

LCU 1700 (+ 1 craft)
An additional craft will fill a FY 2017 gap in procurement due to the BBA reduction and provide enhanced opportunities for EOQ savings, as well as avoid costly maintenance on current LCU beyond 2028.

Permanent Change of Station (PCS) Funding
This will restores approximately 15,000 PCS moves that were reduced due to the BBA reduction. Additional PCS moves alleviate near-term risk to operational readiness by reducing gaps in personnel rotations and preventing a backlog of required moves that would impact future years.

Shore Support (Physical Security Equipment and Environmental Restoration)
- Physical Security Equipment - $50M – Provides physical security equipment (card readers, cameras, notification systems, etc.) sustainment support for Navy Installations and Navy Operational Support Centers.
- Environmental Restoration - $18M – Enables Navy to clean contamination found in drinking water supplies at Naval Auxiliary Landing Field (NALF) Fentress. Also, enables the cleanup of high risk sites that were otherwise deferred due to the urgency of response at NALF Fentress. Funds high priority environmental restoration efforts at NALF Fentress (Chesapeake, VA) for contamination in off-base drinking water supply.

Remediation of system and process deficiencies in support of auditability
This funds the continued audit efforts to meet the Department of the Navy (DON)'s audit milestones. While the PB-17 supports continuation of FY 2016 efforts for audit, these additional funds are needed to properly support the DON's schedule to achieve and sustain financial auditability mandates in FY2017. This funding addresses requirements for: continuous assessment of IT system controls to include financial and business feeder systems, the remediation of system deficiencies as identified, and the additional data management infrastructure to support documentation retention requirements for audit.

Replacement of R-SUPPLY program in support of auditability
This funds the design audit functionality into R-Supply, provides transactional transparency into Maintenance Figure of Merit (MFOM), and completes the analysis of alternatives for Naval Operations Business Logistics Enterprise (NOBLE), the future replacement to Navy Tactical Command Support System (NTCSS), the host of R-Supply.

Critical Aviation and Test Facility Upgrades (range and test facility hangars)
This funds a comprehensive life extension and repair to the Major Range and Test Facility Base (MRTFB) hangars. Hangars support all Naval aircraft (manned and unmanned) and weapons testing programs at Naval Air Warfare Center Aircraft Division (NAWCAD) and Naval Air Warfare Center Weapons Division (NAWCWD) to include: JSF, F/A-18 E/F, EA-18G, UCLASS, BAMS, P-8, VH-92, EA-6B, and weapons. MRTFB is responsible for the maintenance of 13 hangars. Eight of these hangars were constructed in the 1940s and are in need of overhaul. Except for one, none of these hangars has undergone a complete overhaul since their initial construction.

Full Scale Aerial Targets (FSAT) (QF-16) (+5 targets)
This procures an additional five QF-16 targets to address aircraft and weapon systems testing and development throughout the FYDP, which include JSF, AIM-9X, AMRAAM, and SM-6.

High Speed Maneuverable Surface Target (HSMST) (+56 targets)
This procures an additional 56 surface targets to meet Fleet training requirements, bringing the total in FY 2017 to maximum production quantities.

Training Ranges - Barking Sands Tactical Underwater Range
This supports the DON's Optimized Fleet Response Training Plan and mission readiness of deployable units and strike groups. It supports critical Barking Sands Tactical Underwater Range (BARSTUR) refurbishment and Large Area Tracking Range (LATR) Navigation Tech Refresh; both identified as critical and immediate shortfalls.

C-40A (+2 Aircraft)
C-40A executes the Navy Unique Fleet Essential Aircraft (NUFEA) mission and provides Combatant and Component Commanders with short-notice, quick-response, intra-theater air logistics support as well deliver medium and heavy lift capabilities in direct support of Fleet requirements. The current inventory of C-40A is 14 aircraft with one on order. This request for two additional C-40A aircraft would complete the inventory objective of 17 C-40A aircraft. The C-40A warfighting requirement remains 23 aircraft; however, the fiscally constrained inventory objective of 17 aircraft will provide adequate capacity at acceptable levels of risk.

T-ATS(X) (+1 Ship)
This procures one ship in FY 2017 to enable procurement of one ship per year across the FYDP.

MILITARY CONSTRUCTION

NS Norfolk / Chambers Field Magazine RECAP Phase 1 MILCON Project (P-495)
This project addresses inadequate magazine storage due to outdated design, size, and configuration; inadequate material handling facilities and equipment support, and the excessive maintenance backlog, exceeding 50 percent of plant replacement value. It creates a faculty to support MH-60S 2.75" rocket and 20 mm gun firing exercises and Airborne Mine Neutralization System (AMNS) training. Currently, the truck holding area is also used for armed helo and submarine countermeasure buildup. However, these unique missions cannot be performed concurrently; only one can be accomplished at a time within explosive safety siting requirements. Design, size, configuration and capacity of WWII era magazines do not support modern ordnance. Increasing mission and lack of onsite storage drives increased handling and movement of ordnance. This will also support onsite storage for USMC anti-terrorism unit and Special Warfare contingency load plan.

SEAWOLF Class Service Pier-Bangor MILCON (P-834)
Upon review of current ship maintenance availabilities, this project is requested for acceleration into FY 2017 to minimize conflict with early phases of construction. This project constructs a new, single level, general purpose berthing extension to the service pier at NAVBASE Kitsap-

Bangor. It constructs new utilities, compressor building, parking, and maintenance laydown areas. It also installs a new industrial multi-phase emergency generator and modifies the existing utilities building on the service pier. When constructed, this project will enable relocation of SSN-21 and SSN-22 from Bremerton and co-locate all SEAWOLF class submarines at Bangor with SSN-23. This will result in a reduction of maintenance project teams from three to one and support increased operational availability.

A-School Dormitory (P-711, Pensacola, FL) (QOS investment)
This project will enable cost avoidance of the high expense to house transient personnel on the local economy due to overcrowding and unhealthy conditions resulting from attempting to place students in limited on-base housing. It will renovate four facilities to provide adequate "A" School Bachelor Enlisted Quarters space for 550 E-1 to E-4 students training at the Naval Air Technical Training Center and repair the galley.

Advanced Wastewater Treatment Plant MILCON Project (P663, Mayport, FL)
This project will achieve long-term regulatory compliance for Naval Station Mayport's wastewater treatment and discharge to the St. John's River. It will construct an advanced wastewater treatment plant to treat raw sewage from ships' collection, holding and transfer (CHT) tanks and shore-based support operations, and demolishes an existing sewage treatment plant. This will ensure Naval Station Mayport can comply with Florida statutes.

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

THURSDAY, MARCH 17, 2016

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

DEPARTMENT OF DEFENSE BUDGET POSTURE

The committee met, pursuant to notice, at 9:40 a.m. in Room SD–G50, Dirksen Senate Office Building, Senator John McCain (chairman) presiding.

Committee members present: Senators McCain, Inhofe, Sessions, Wicker, Ayotte, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Lee, Graham, Reed, Nelson, Manchin, Shaheen, Gillibrand, Blumenthal, Donnelly, Hirono, Kaine, King, and Heinrich.

OPENING STATEMENT OF SENATOR JOHN MCCAIN, CHAIRMAN

Chairman MCCAIN. Good morning. Good morning, all.

The Senate Armed Services Committee meets this morning to receive testimony on the Department of Defense's Fiscal Year 2017 Budget Request, the associated Future Years Defense Program, and the posture of U.S. Armed Forces.

We welcome our witnesses. We thank each of you for your service to our Nation and to the soldiers, sailors, airmen, and marines serving here at home and around the world.

Before I proceed with my statement, let me just say that, yesterday, disturbing statement made a senior executive of the United Launch Alliance [ULA] were reported in the media. These statements raise troubling questions about the nature of the relationship between the Department of Defense and ULA. This committee treats with the utmost seriousness any implication that the Department showed favoritism to a major defense contractor or that efforts have been made to silence Members of Congress.

Mr. Secretary, I expect that you will make a full investigation into these statements and take action, wherever appropriate.

Last month, the Director of National Intelligence provided this committee a candid and unsettling picture of our worldwide threats. Just consider what has occurred over the past 5 years. While al Qaeda remains a real and potent threat, the vanguard of global terrorism is increasingly led by ISIL [Islamic State of Iraq and the Levant], which has metastasized across the Middle East,

Africa, and South Asia, and which has already launched attacks into the heart of Europe and inspired an attack here in the United States. Russia has invaded Ukraine, annexed Crimea, menaced our NATO [North Atlantic Treaty Organization] allies, intervened militarily in Syria, and is now regarded by Chairman Dunford, and many of our military leaders say, as our Nation's greatest threat. China has continued its rapid military modernization, steadily militarized the South China Sea, and used coercion and the threat of force to bully our Asian allies and partners. North Korea has launched brazen cyberattacks against the United States, continued to advance and test its nuclear weapons program, and conducted provocative missile tests, including a potential ICBM [intercontinental ballistic missile] capability. Rather than moderating its malign activities in the Middle East, as advocates of the nuclear agreement predicted, Iran has instead increased its support for its terrorist proxies from Syria to Yemen, conducted advanced missile tests, in violation of U.N. [United Nations] Security Council resolutions, and fired rockets near a U.S. aircraft carrier. More recently, Iran seized two U.S. Navy vessels, detained 10 U.S. sailors, and propagandized the entire incident, in total violation of international law and centuries of maritime tradition.

These are the growing threats we face in the world. The Department of Defense remains guided by a strategy that predates all of these developments. It is based on assumptions about the world that no longer apply. What's worse, the same is true about our Nation's defense spending. While the requirements for our military have grown, the Budget Control Act [BCA] arbitrarily capped defense spending back in 2011. Despite periodic relief from these caps, each of our military services remain undersized, unready, and underfunded to meet the current and future threats.

This translates into real things that our military, as remarkable and determined as it is, simply cannot do for our Nation. Our aircraft carriers no longer provide constant presence in the Middle East or the western Pacific. Just one-third of Army brigade combat teams are ready to deploy and operate decisively. The Air Force is the smallest it's ever been, and more than half of its squadrons are not combat mission-ready. Marine Corps aviation is in crisis, and the Assistant Commandant testified this week that his forces cannot execute our Nation's defense strategy.

The effects on the present force are bad enough. The effects on the future force are worse. Years and years of deferred maintenance and delayed modernization are creating a mountain of bills that will soon come due. From 2018 to 2021 alone, the Department of Defense needs $100 billion above the BCA caps just to meet current requirements. In reality, those requirements are inadequate, additional resources will be needed, and the longer we try to delay that bill, the bigger and worse it gets, and the more we run the risk of a return to sequestration.

This is a crisis of our own making. I'm speaking of the Congress, as well. It is why many of us are so concerned about the President's Budget request for fiscal year 2017. There's a lot to like about this request. Many of the investments, especially related to the so-called "third offset strategy" are critical and long overdue. That said, though our Nation is asking our military to do more

over the next fiscal year, the President's defense budget request, in real dollars, is actually less than it is this year. As a result, the Department was forced to cut $17 billion it said it needed last year, purely for budget reasons. To be sure, the temporary effects of more positive economic assumptions and lower fuel prices soften the blow. Nevertheless, the Department cut over $10 billion in real military capability to mitigate this shortfall.

Nothing in the Bipartisan Budget Act prevented the President from requesting more than he did. He did not have to fund our growing operational requirements by cutting modernization and procurement. He chose to do so. These are just some of the consequences. The Army had to cut 24 UH–60 Black Hawk helicopters. The Air Force had to cut 5 F–35As this year and 45 over the next 4 years. The Navy plans to lay up an additional 5 *Ticonderoga*-class cruisers. The Marine Corps cut 77 joint light tactical vehicles, $1.3 billion in military construction, and family housing has been cut. Certain critical nuclear modernization efforts, including an ICBM replacement and the B61 nuclear bomb tail kit, have been further delayed.

The unfunded requirements of the military services now total nearly $18 billion. That represents the additional ships, airplanes, helicopters, fighting vehicles, training, and other programs that our military leaders say they need simply to carry out our increasingly antiquated defense strategy and an acceptable level of risk. Last year, the former Chairman of the Joint Chiefs, General Dempsey, described the Future Years Defense Plan as, quote, "the lower ragged edge of manageable risk in our ability to execute the defense strategy." Now, here were are, 1 year later and $17 billion less than what our military needed and planned for. I do not know what lies beneath the, quote, "lower ragged edge of manageable risk," but this is what I fear it means, that our military is becoming less and less able to deter conflict, and if, God forbid, deterrence does fail somewhere and we end up in conflict, our Nation will deploy young Americans into battle without sufficient training or equipment to fight a war that will take longer, be larger, cost more, and ultimately claim more American lives than it otherwise would have.

This is the growing risk we face, and we can't change course soon enough. We should not threaten the stability provided by the budget—Bipartisan Budget Act. We should build on it. Therefore, we make a virtue out of stability. Let's recall, this budget agreement ends this year, and defense spending over the next 4 years is capped by a law at $100 billion less—less than what our witnesses will testify our military needs. That kind of stability is not the answer, it is the problem. If we cut into our military muscle again this year, our looming budget problems just get worse.

Finally, another priority of this committee will remain the defense reform effort that we began last year, including a review of the Goldwater-Nichols legislation that is now making—marking its 30th anniversary. Over the past year, Senator Reed and his staff and I and my staff, we have held hearings and conducted interviews with dozens of former and currently serving military and civilian defense leaders, including discussions with our distinguished witness today. The result is that I believe we have a rather clear

definition of the challenge that we all must address. The focus of Goldwater-Nichols was operational effectiveness, improving our military's ability to fight as a joint force. The challenge today is strategic integration. By that I mean improving the ability of the Department of Defense to develop strategies and integrate military power globally to confront a series of threats, both states and nonstate actors, all of which span multiple regions of the world and numerous military functions. Put simply, our competitors are catching up, and our defense organization must be far more agile and innovative than it is.

As the committee considers what steps may be necessary to improve our defense organization, we are committed to work closely with both of you, and we would welcome any thoughts and recommendations you are prepared to share today.

Senator Reed.

STATEMENT OF SENATOR JACK REED

Senator REED. Well, thank you very much, Mr. Chairman.

Let me join you in welcoming our witnesses and thanking them for their service.

The President's Fiscal Year 2017 Budget submission for Department of Defense includes nearly $583 billion in discretionary spending and complies with the funding levels included in the Bipartisan Budget Act of 2015 [BBA]. Of this amount, $523.9 billion is included in the base budget, and $58.8 billion is designated for the overseas contingency operations account.

As the committee considers the Department's funding request, we must always be mindful of the risks facing our country and our national security challenges. Russia's increasingly aggressive posture in eastern Europe and the Middle East must be monitored, contained, and, when necessary, countered. China continues to invest aggressively in its military, particularly in capabilities that allow them to project power and deny access to others. North Korea recently conducted a rocket launch, in violation of multiple United Nations Security Council resolutions, and continues to be an immediate and present danger to global security. Finally, Iran is a significant concern to the committee, particularly its recent missile tests and ongoing support to nonstate actors across the Middle East. Our Nation's counterterrorism fight continues to be a top priority. It has been a year of significantly—security and political transition in Afghanistan, and we must continue to evaluate how we can best enable efforts by the government of Afghanistan to protect and govern its people. In Iraq, ISIL has how lost significant territory, but difficult tasks remain, including evicting ISIL from population centers. Furthermore, the dangers posed by the disrepair of the Mosul Dam must be addressed. In Syria, ISIL maintains control of many areas while the world evaluates what Russia's recent announcement of a withdrawal means for negotiations. As ISIL loses ground in some areas, it gains footholds in new nations, like Libya.

In light of these ongoing national security challenges we face around the world, we must closely scrutinize the budget request to ensure critical priorities have sufficient funding, scarce resources

are not devoted to underperforming programs, and, where possible, allocate money to those areas that need additional funds.

With regard to our military forces, after nearly a decade and a half of continuous military operations, we must take a hard look at the readiness levels across all the services. In fact, this committee has repeatedly heard testimony from senior military leaders that rebuilding readiness levels is their highest priority.

The fiscal year 2017 budget request makes needed investments in readiness accounts that will help the military services, but it will take time to rebuild readiness. That is why it is vitally important that readiness accounts be protected from cuts. I would welcome any comments from our witnesses on the importance of rebuilding readiness and if they believe the services are on track to meet their full-spectrum readiness goals.

Another challenge is the modernization of military platforms and equipment. While the readiness of our troops is paramount, we cannot neglect investments in modernization. Building and maintaining readiness levels requires that our forces have access to equipment that is properly sustained and upgraded. However, in order to meet the top-line funding levels set by the 2015 BBA, the Department's budget request modified base budget funding for some procurement and modernization efforts. While difficult choices must be made, we must ensure that this budget does not jeopardize shipbuilding and aviation procurement accounts, as well as targeted investments in research and development and that foster new technology. I would like to know if our witnesses feel confident that the reductions in the procurement accounts will not adversely impact these programs by adding substantial cost to the overall program or extensively delaying the fielding of any platform.

The well-being and quality of life of our men and women in uniform, and that of the civilian workforce, remain a priority concern. We are mindful that we must support and maintain a high quality of life, but also a high quality of service. The administration's request includes a 1.6 percent pay raise for both the military and civilian employees, and a robust array of benefits. These funds are critical to ensuring that military and civilian pay remains competitive in order to attract and retain the very best for military and Government service.

The committee also understands, however, that military and civilian personnel costs comprise nearly one-half of the Department's budget, and we are committed to implementing reforms that will slow that growth.

Finally, we need to address the long-term budget situation that we find ourselves in. Last year, the Senate had a healthy debate on how to manage the needs in light of the Budget Control Act. At the time, I argued that meeting our national security challenges required relief for the Department of Defense as well as other agencies that contribute to the defense and prosperity of the Homeland. It is a daunting task to decide how to allocate finite resources for a myriad of priorities, and I recognize the Department had to make hard choices in order to comply with the 2015 budget agreement. I believe the Senate, in a bipartisan fashion, should repeal the BCA

and establish a more reasonable limit on discretionary spending in an equitable manner that meets all of our needs as a Nation.

I look forward to this morning's testimony.

Thank you again, Mr. Chairman.

Chairman MCCAIN. Welcome, Mr. Secretary. We look forward to hearing from you and General Dunford. Thank you for appearing.

STATEMENT OF HONORABLE ASHTON B. CARTER, SECRETARY OF DEFENSE; ACCOMPANIED BY HONORABLE MICHAEL J. McCORD, UNDER SECRETARY OF DEFENSE (COMPTROLLER) AND CHIEF FINANCIAL OFFICER

Secretary CARTER. Thank you, Chairman. Thanks for the opportunity. Chairman, Secretary—excuse me—Senator Reed, all the members of the committee, thank you so much for the opportunity to be here, for me, the Chairman, and for our Under Secretary, and, above all, for your steadfast support to our DOD [Department of Defense] men and women all over the world, military and civilian alike, who serve and defense us. I'm very pleased to be here.

I'm pleased to be here with Chairman Dunford. We will be discussing the President's 2017 defense budget and other matters, the—a budget which marks a major inflection point for the Department of Defense.

In this budget, we're taking the long view. We have to, because, even as we fight today's fights, we must also be prepared for what might come 10 and 20 and 30 years down the road.

Last fall's Bipartisan Budget Act gave us some much needed stability after years of gridlock and turbulence. I want to thank you and your colleagues for coming together to help pass it. That budget set the size of our budget, and, with this degree of certainty, we focused on its shape, changing that shape in fundamental but carefully considered ways to adjust to a new strategic era and to seize opportunities for the future.

Let me describe the strategic assessment that drove our budget decisions. First of all, it's evident that America is still today the world's foremost leader, partner, and underwriter of stability and security in every region of the world, as we've been since the end of World War II. That's thanks, in large part, to the unequivocal strength of the United States military. As we continue to fulfill this enduring role, it's also evident that we're entering a new strategic era, as has been noted. Today's security environment is dramatically different from the last 25 years, requiring new ways of investing and operating. Five evolving strategic challenges—namely Russia, China, North Korea, Iran, and terrorism—are now driving DOD's planning and budgeting, as reflected in this budget.

I want to focus first on our ongoing fight against terrorism, and especially ISIL, which we must and will deal a lasting defeat, most immediately in its parent tumor in Iraq and Syria, but also where it's metastasizing. We're doing that in Africa and elsewhere, and also in Afghanistan, where we continue to stand with the Afghan Government and people. All the while, we're continuing to help to protect our Homeland. As we're accelerating our overall counter-ISIL campaign, we're backing it up with increased funding this year. We're requesting 50 percent more than last year.

We've gained momentum against ISIL since the Chairman and I last appeared before you. Notably, the Iraqis took—retook Ramadi and are now reclaiming further ground in Anbar Province. In Syria, capable and motivated local forces, supported by the United States and our global coalition, have retaken the east Syrian town of Shaddadi, severing the last major northern artery between Raqqa and Mosul, and therefore between ISIL in Syria and ISIL in Iraq.

Meanwhile, 90 percent of our military coalition partners have committed to increase their contributions to help defeat ISIL. We have increased strikes on ISIL-held cash depots and oil revenues. We've conducted targeted strikes against ISIL in Libya. We've also recently killed ISIL's Minister of War, the Chechen fighter Omar al Shishani.

Now, before I continue, I want to say a few words about Russia's role. Russia said it was coming into Syria to fight ISIL. But, that's not what it did. Instead, their military has only prolonged the civil war, propped up Assad; and, as of now, we haven't seen whether Russia retained the leverage to find a diplomatic way forward, which is what the Syrian people need. One thing is clear, though: Russia's entry into Syria didn't impact our campaign against ISIL. Along with our coalition partners, we're intensifying our campaign against ISIL in both Iraq and Syria, and we'll continue to do so until ISIL is dealt a lasting defeat.

Two of the other four challenges reflect a return, in some ways, to great-power competition. One is in Europe, where we're taking a strong and balanced approach to deter Russian aggression. We haven't had to devote a significant portion of our defense investment to this possibility for a quarter century, but now we do.

The other challenge is in the Asia-Pacific, where China is rising, which is fine, but behaving aggressively, which is not. There, we're continuing our rebalance to the region to maintain the stability we've underwritten for the past 70 years, allowing so many nations to rise and prosper in this, the single most consequential region for America's future.

Meanwhile, two other longstanding challenges pose threats in specific regions. North Korea is one. That's why our forces on the Korean Peninsula remain ready, as they say, to "fight tonight." The other is Iran, because, while the nuclear accord is a good deal for preventing Iran from getting a nuclear weapon, in other respects our concerns with Iran persist.

While I'm on the subject of Iran, and given this committee's particular interest in this matter, I want to say a few words about Iran's treatment of our sailors on Farsi Island, back in January. As I made clear then, Iran's actions were outrageous, unprofessional, and inconsistent with international law. Nothing we've learned about the circumstances of this incident since then changes that fact. It's because of Iran's recklessness and destabilizing behavior in that part of the world, the DOD remains full speed ahead in our investments, our planning, and our posture to ensure we deter Iran's aggression, counter its malign influence, and uphold our ironclad commitments to our regional friends and allies, especially Israel, to whom we maintain an unwavering and unbreakable commitment.

Now, addressing all of these five challenges requires new investments on our part, new posture in some regions, and also new and enhanced capabilities. For example, we know we must deal with all these five challenges across all domains, not just the usual air, land, and sea, but also especially in cyber, electronic warfare, and space, where reliance on technology has given us great strength and great opportunities, but also led to vulnerabilities that adversaries are eager to exploit.

Key to our approach is being able to deter our most advanced competitors. We must have, and be seen to have, the ability to ensure that anyone who starts a conflict with us will regret doing so. In our budget, our capabilities, our readiness, and our actions, we must, and we will, be prepared for a high-end enemy, what we call "full-spectrum." In this context, Russia and China are our most stressing competitors, as they've both developed and continue to advance military systems that seek to threaten our advantages in specific areas. We see it in the South China Sea and in Crimea and Syria, as well. In some cases, they're developing weapons and ways of war that seek to achieve their objectives rapidly, before they think we can respond. Because of this, DOD has elevated their importance in our planning and budgeting.

In my written testimony, I've detailed how our budget makes critical investments to help us address better these five evolving challenges. We're strengthening our deterrence posture in Europe by investing $3.4 billion for our European Reassurance Initiative, quadruple what we invest—what we requested last year. We're prioritizing training and readiness of our ground forces, as has been noted, and reinvigorating the readiness and modernization of our fighter aircraft fleet. We're investing in innovative capabilities, like the B–1—B–21 long-range strike bomber, microdrones, the arsenal plane, as well as advanced munitions of all sorts. In our Navy, we're emphasizing not just increasing the number of ships, which we're doing, but especially their lethality, with new weapons and high-end ships, and extending our commanding lead in undersea warfare with new investments in unmanned undersea vehicles, for example, and more submarines, with the versatile *Virginia* payload module that triples their strike capacity from 12 Tomahawks to 40. We're doing more in cyber, electronic warfare, and space, investing in these three domains a combined total of $34 billion in 2017, to, among other things, help build our cyber mission force, develop next-generation electronic jammers, and prepare for the possibility of a conflict that extends into space. In short, DOD will keep ensuring our dominance in all domains.

As we do this, our budget also seizes opportunities for the future. That's a responsibility I have to all my successors, to ensure the military and the Defense Department they inherit is just as strong, if not stronger, than the one I have the privilege of leading today. That's why we're making increased investments in science and technology, innovating operationally, and building new bridges to the amazing American innovative system, as we always have, to stay ahead of future threats. That's why we're building what I've called the "force of the future," because, as good as our technology is, it's nothing compared to our people. In the future, we need to continue to recruit and retain the very best talent. Competing for

good people for an All-Volunteer Force is a critical part of our military edge. Everyone should understand this need, my commitment to it.

Because we owe it to America's taxpayers to spend our defense dollars as wisely and responsibly as possible, we're also pushing for needed reforms across the DOD enterprise, from continuously improving acquisitions to further reducing overhead to proposing new changes to the Goldwater-Nichols act that defines much of our institutional organization. I know Goldwater-Nichols reform is a focus of this committee. Chairman, I appreciate that. Goldwater-Nichols was important, had deeply positive results, but, after 30 years, as you've said, it needs updates. There are some areas where the pendulum may have swung too far, like not involving the Service Chiefs enough in acquisition decisionmaking and accountability. There are areas, as you've noted, where subsequent world events suggest nudging the pendulum further, like taking more steps to strengthen the capability of the Chairman and the Joint Chiefs of Staff to help address transregional threats, threats in multiple domains, and multiple threats within overlapping timeframes.

As you know, last fall we began a comprehensive department-wide review of organizational issues like these to identify any potential redundancies, inefficiencies, or other areas of improvement, to help formulate—and to help formulate DOD's recommendations to you. I expect its internal findings by the end of March.

This work is important. Though much is within our existing authority to do so, we look forward to working closely with Congress to implement needed reforms. As we discussed over breakfast last week, Chairman and Senator Reed, I look forward to working with you personally on this important matter.

Let me close on the broader shift reflected in this budget. The Defense Department doesn't have, as I've said, the luxury of just one opponent or the choice between current fights and future fights. We have to do both. That's what this budget is designed to do, and we need your help to succeed. I thank this committee, again, for supporting the Bipartisan Budget Act that set the size of our budget. Our submission focuses on the budget's shape, making changes that are necessary and consequential. We hope you approve it. I know some may be looking at the difference between what we proposed last year and what the budget deal gave us. A net total of about $11 billion less is provided by the Bipartisan Budget Act, out of a total of almost $600 billion. But, I want to reiterate that we've mitigated that difference, and we're prepared to explain how, and that this budget meets our needs.

The budget deal was a good deal. It gave us stability. We're grateful for that. DOD's greatest risk is losing that stability this year and having uncertainty and sequester return in future years. That's why, going forward, the biggest budget priority for us, strategically, is Congress averting the return of sequestration, to prevent $100 billion in automatic cuts that are looming, so we can maintain stability and sustain all these critical investments over time. We've done this before. That same support is essential today to address the security challenges we face and to seize the opportunities within our grasp. As long as we work together to do so, I know our national security will be on the right path, and America's

military will continue to defend our country and help make a better world for generations to come.

Thank you.

[The prepared statement of Secretary Carter follows:]

PREPARED STATEMENT BY SECRETARY OF DEFENSE ASH CARTER

I. PURPOSE OF THIS TESTIMONY

Chairman McCain, Ranking Member Reed, Members of the Committee: Thank you for inviting me here today, and for your steadfast support for the men and women of the Department of Defense (DOD), military and civilian alike, who serve and defend our country all over the world. I'm pleased to be here with Chairman Dunford to discuss President Obama's fiscal year (FY) 2017 budget submission for the Defense Department.

At this time last year, we were all facing the bleak prospect of looming budget sequestration, and the damage its return would do to our people and our mission. I'm grateful that our country's leaders were able to come together last fall to avert that dismal future, and reach a budget deal that—after several years of fiscal turmoil and reductions—has allowed for greater investment in all our elements of national security and strength. That was what I urged since becoming Secretary of Defense, including in last year's budget testimony before this committee, and given the threat environment we face around the world, forging that deal was the responsible thing to do. It allows our military personnel and their families to know their future more than just one year at a time, which they deserve. It lets our defense industry partners be more efficient and cutting edge, as we need them to be. Perhaps most importantly, it sends a signal to the world—to friends and potential foes alike—of our nation's strength and resolve.

The President's Budget submission accordingly adheres to that budget deal—requesting a total of $582.7 billion for the Defense Department in fiscal year 2017, for both the base budget and Overseas Contingency Operations (OCO) funds combined. How we plan to invest those funds, along with our planned investments for the next five years—as detailed in the customary Future Years Defense Program (FYDP) that's included in the President's Budget submission—are critical to DOD's ability to carry out our mission of national defense with the excellence the American people expect of their military, which is today the finest fighting force the world has ever known.

As you know, no one got everything they wanted in the budget deal—I said last year that we needed to rise above our differences, and I'm glad many members of Congress were able to do that—so in budgeting and programming for fiscal year 2017, we had to make responsible choices. The President's Budget submission reflects those choices, and we need your support for them. This is particularly true for prudent and necessary reforms—some of which the Congress has long denied, in spite of the cost to both DOD and to America's taxpayers. Indeed, while DOD is grateful to this and the other defense committees for your support for the budget deal, it is also the defense committees that in recent years have been tying our hands on reform, as I will address later in this testimony.

We should remember, however, that the budget deal only covered two years. Unless Congress addresses the years beyond it and heads off sequestration, DOD will face $100 billion in cuts from 2018 to 2021, which would introduce unacceptable risks. Washington will need to come together once again—not unlike last year, and two years before that—to provide stability and protect our national security.

That's important, because in this budget submission, we're taking the long view. We have to, because even as we must fight and win today's fights, we must also be prepared to deter and if necessary fight and win the fights that might come 10, 20, or 30 years down the road. Last fall's budget deal set the size of our budget, and with this degree of certainty we focused on changing its shape in fundamental ways—making choices and tradeoffs to adjust to a new strategic era, and seize opportunities for the future.

II. A STRATEGIC TURNING POINT FOR THE DEFENSE DEPARTMENT

Let me now describe the strategic assessment that drove our budget decisions. First of all, it's evident that America is still today the world's foremost leader, partner, and underwriter of stability and security in every region across the globe, as we have been since the end of World War II. As we fulfill this enduring role, it's also evident that we're entering a new strategic era.

Context is important here. A few years ago, following over a decade when we were focused on large-scale counterinsurgency operations in Iraq and Afghanistan, DOD began embarking on a major strategy shift to sustain our lead in full-spectrum warfighting. While the basic elements of our resulting defense strategy remain valid, it's also been abundantly clear to me over the last year that the world has not stood still since then—the emergence of ISIL, and the resurgence of Russia, being just the most prominent examples.

This is reflective of a broader strategic transition underway, not unlike those we've seen in history following major wars. Today's security environment is dramatically different—and more diverse and complex in the scope of its challenges—than the one we've been engaged with for the last 25 years, and it requires new ways of thinking and new ways of acting.

Accordingly, five evolving challenges are now driving the focus of DOD's planning and budgeting.

Two of these challenges reflect a recognition of—return to, in some ways—great power competition. This is something we haven't seen for some time, and that requires heightened focus given its potential impact on our nation and the world. The first such challenge is in Europe, where we're taking a strong and balanced approach to deter Russian aggression—we haven't had to devote a significant portion of our defense investment to this possibility for 25 years, and while I wish it were otherwise, now we do. The second is in the Asia-Pacific, where we haven't faced great power competition since the end of World War II, and where China is rising, which is fine, but behaving aggressively, which is not. There, we're continuing our rebalance, in terms of weight of effort, to maintain the regional stability we've underwritten for the past 70 years, allowing so many nations to rise and prosper in this, the single most consequential region for America's future.

Meanwhile, two other longstanding challenges pose threats in specific regions. One is North Korea, which remains dangerous to both us and our allies—that's why our forces on the Korean Peninsula remain ready, as they say, to "fight tonight." The other is Iran—because while the nuclear accord is a good deal for preventing Iran from getting a nuclear weapon, and doesn't limit DOD in any way, we must still deter Iranian aggression and counter Iran's malign influence against our friends and allies in the region, especially Israel, to whom we maintain an unwavering and unbreakable commitment.

Challenge number five, no less important than the other four, is our ongoing fight to counter terrorism, and especially defeat ISIL—most immediately in its parent tumor in Iraq and Syria, and also where it is metastasizing, in Afghanistan, Africa, and elsewhere—at the same time as we're protecting our Homeland. While ISIL must and will be defeated now, in the longer perspective and in our budgeting we must also take into account that as destructive power of greater and greater magnitude falls into the hands of smaller and smaller groups of people, countering terrorists will be a continuing part of the future responsibilities of DOD and other national security leaders.

DOD must and will address all five of these challenges as part of its mission to defend this country. Doing so requires some new investments on our part, new posture in some regions, and also new and enhanced capabilities.

Key to our approach is being able to deter the most advanced adversaries while continuing to fight terrorist groups. This means we must have—and be seen to have—the ability to impose unacceptable costs on an advanced aggressor that will either dissuade them from taking provocative action, or make them deeply regret it if they do. To be clear, the U.S. military will be ready to fight very differently than we have in Iraq and Afghanistan, or in the rest of the world's recent memory. We will be prepared for a high-end enemy—what we call full-spectrum. In our budget, our plans, our capabilities, and our actions, we must demonstrate to potential foes that if they start a war, we are able to win, on our terms. Because a force meant to deter conflict can only succeed in deterrence if it can show that it will dominate a conflict.

We have this ability with respect to North Korean and Iranian military forces, as well as in executing the military aspects of countering terrorists, as we're doing now against ISIL. That won't change, even as we know that military power alone cannot prevail without capable and motivated local forces to sustain ISIL's defeat—nor can the United States alone deliver a lasting defeat—against the toxic ideology of terrorists like ISIL that have so little regard for the lives of fellow human beings.

In this context, Russia and China are our most stressing competitors, as they've both developed and are continuing to advance military systems that threaten our advantages in specific areas, and in some cases, they're developing weapons and ways of war that seek to achieve their objectives in ways they hope would preempt a response by the United States. Because of these facts, because the implications

of any great-power conflict would be so dire for the United States and the world, and because of those nations' actions to date—from Ukraine to the South China Sea—DOD has elevated their importance in our defense planning and budgeting to ensure we maintain our advantages in the future.

While we do not desire conflict with any of these nations—and, to be clear, though they pose some similar defense challenges, they are very different nations and situations—we also cannot blind ourselves to the actions they choose to pursue. That is the responsible course of action for the Defense Department. Our military is first and foremost a warfighting force, and even as we seek to deter wars, we must also be prepared to fight and win them, which is itself a key part of deterrence.

Our military must be balanced with the proper size and capability to defeat any attack against U.S. Forces and our allies. Because of the decisions in this budget, our military will be better prepared for both present and future challenges, and better positioned to deter, and if necessary fight and win, wars against even the most high-end of potential adversaries.

As this budget addresses those five evolving challenges, it also seizes great opportunities—in supporting new and innovative operational concepts; in pioneering and dominating technological frontiers, including undersea, cyber, space, electronic warfare, and other advanced capabilities; in reforming the defense enterprise; and in building the force of the future. I will address the investments we're making to do so later in this testimony.

III. SUPPORTING THE STRENGTH AND WELLNESS OF TODAY'S FIGHTING FORCE

Before I address how this budget ensures we meet those challenges and seize those opportunities, I want to first emphasize our enduring commitment *to supporting the men, women, and families of the world's finest fighting force.* Above all, this means exercising the utmost care in decisions involving the deployment and employment of our troops. It also requires devoting a significant share of our budget every year toward supporting the people, military and civilian alike, who execute DOD's missions around the world.

To ensure we have a force that's ready to carry out today's missions, this budget invests in the four main things that every soldier, sailor, airman, and Marine needs to do their job—the right training; the right equipment; the right force size, meaning the right number of people alongside them; and the right compensation.

The Right Training

In fiscal year 2017 and beyond, the budget makes critical investments in training throughout the force to rebuild toward full-spectrum combat readiness and continue recovering from the damage caused by sequestration in recent years—though, it's important to remember that restoring readiness requires not only sufficient funding, but also time. The budget maximizes use of the Army's decisive action Combat Training Centers, funding 19 total Army brigade-level training rotations. It provides robust funding to sustain the Navy and Marine Corps' current training levels and readiness recovery plans for fiscal year 2017—optimizing Navy training while maximizing the availability of naval forces for global operations, and fully funding the Marine Corps' integrated combined arms exercises for all elements of its Marine Air-Ground Task Forces. Because recent operational demands like the fight against ISIL have slowed the Air Force's return to full-spectrum readiness, the budget increases funding—as part of a $1 billion increase over the FYDP to support Air Force readiness—to modernize and expand existing Air Force training ranges and exercises here at home, providing pilots and airmen with more realistic training opportunities when they're not deployed.

The Right Equipment

The budget also makes important investments to provide our men and women in uniform with functioning, well-maintained equipment so that when we send them into the fights of today, they're able to accomplish their mission and come home safely. For example, to address the Navy and Marine Corps' growing maintenance backlog in tactical aviation, the budget funds a 15 percent increase in F–18 depot maintenance capacity, and it buys an additional 16 F/A–18 E/F Super Hornet fighter jets between now and fiscal year 2018—providing a significant boost to the health of the Navy and Marine Corps' 4th-generation fighter aircraft fleet so it's ready and capable for today's missions. To help ensure the Air Force has enough ready and capable aircraft for both combat missions and intelligence, surveillance, and reconnaissance (ISR), the budget funds improvements in the avionics and electronic warfare systems of legacy fighter and bomber aircraft, and it supports the Air Force's 'get well plan' for remotely-piloted aircraft.

The budget also makes critical investments in every domain to research, develop, test, evaluate, and procure the right technology and equipment our military will need to deter and if necessary fight and win full-spectrum conflicts in the future. I will detail those investments later in this testimony.

The Right Force Size

The flexibility provided by last fall's budget deal allowed us to maintain DOD's desired targets across the FYDP for end-strength and active-reserve mix for our ground forces—without it, sequestration likely would have forced further reductions. Therefore, the budget stabilizes our total ground force end-strength by the end of fiscal year 2018 with an Army of 450,000 active-duty soldiers, 335,000 soldiers in the Army National Guard, and 195,000 soldiers in the Army Reserve—comprising 56 total Army brigade combat teams and associated enablers—and a Marine Corps of 182,000 active-duty Marines and 38,500 Marine reservists. For the Navy, the budget continues to grow the size, and importantly the capability, of the battle fleet—providing for 380,900 Active Duty and Reserve sailors in fiscal year 2017, and an increase from 280 ships at the end of fiscal year 2016 to 308 ships at the end of the FYDP. The budget also supports an Air Force of 491,700 Active Duty, Reserve, and National Guard airmen—maintaining 55 tactical fighter squadrons over the next five years, and providing sufficient manpower to address high operating tempo and shortfalls in maintenance specialists for both tactical fighters and remotely-piloted aircraft.

The Right Compensation

In fiscal year 2017, the budget provides $177.9 billion in pay and benefits—including health care, housing allowances, commissaries, retirement, and other benefits—for DOD's 2.1 million military personnel and their families. I will discuss DOD's proposed reforms to some of these areas later in this testimony. To help make sure DOD is competitive for the best talent, the budget includes a department-wide pay raise of 1.6 percent in fiscal year 2017. This is an increase above fiscal year 2016's pay raise of 1.3 percent.

It's important to note that of all the cuts we've taken to our previously-planned budgets since the Budget Control Act was passed, including cuts from sequestration—altogether so far totaling at least $800 billion over ten years—less than 9 percent of those reductions came from military compensation proposals. This should make clear that we've worked extremely hard to protect our people, and that we do need to address some places where savings can be found, such as through modernizing and simplifying our military healthcare system, which I address later in this testimony.

More Than Military Readiness

Beyond ensuring the combat readiness of America's military, our commitment to the force of today also encompasses what we're doing to ensure the dignity of our people. We're putting a priority on preventing and eliminating sexual harassment and sexual assault in the military, investing $246 million in fiscal year 2017 to help support survivors, reduce retaliation for reporting, and eradicate these crimes from our ranks—and soon, DOD will deliver to Congress our strategy on addressing retaliation, in particular. We're also helping provide transition support and advocating for employment opportunities for veterans, investing a total of $109 million in fiscal year 2017 so our people can make the most of their potential and keep making a difference when they complete their service in uniform. We're fostering greater diversity of our force, because our strength depends on being open to the widest possible pool of talent that can meet our standards—young Americans today are more diverse, open, and tolerant than past generations, and if we're going to attract the best among them to contribute to our mission, we ourselves have to be more diverse, open, and tolerant, too. It's the only way to compete in the 21st century.

That's one reason why we're opening all remaining combat positions to women, so that we have access to 100 percent of our population for every position in the All-Volunteer Force and every American who can meet our exacting standards has the full and equal opportunity to contribute to our mission. That said, since the declaration that opens all career fields to women is by itself not sufficient for their full integration, I've asked the military services to mitigate any concerns about combat effectiveness by incorporating my seven guiding principles—transparent standards, population size, talent management, physical demands and physiological differences, operating abroad, conduct and culture, and assessment and adjustment—into their implementation plans, which I have reviewed and approved and are now being carried out. First and foremost, this means the services will continue to apply objective standards for all career fields to ensure leaders assign tasks and career fields throughout the force based on ability, not gender. This may mean in some cases,

equal opportunity may not always equate to equal participation. Integration provides equal opportunity for men and women who can perform the tasks required; it does not guarantee women will fill these roles in any specific number or at any set rate, as adherence to a merit-based system must continue to be paramount. Also, we must incorporate concrete ways to mitigate the potential for higher injury rates among women, and leverage lessons learned from Iraq and Afghanistan to address concerns regarding operating in areas where there is cultural resistance to working with women. We must address attitudes toward team performance through education and training, including making clear that sexual assault or harassment, hazing, and unprofessional behaviors are never acceptable. Our core beliefs in good order, discipline, leadership, and accountability are foundational to our success in integration. It is absolutely critical that we embark on integration with a commitment to the monitoring, assessment, and in-stride adjustment that enables sustainable success.

Finally, it's important to remember that our commitment to the force of today is not limited to those who serve in uniform. In fiscal year 2017, it also includes $79.3 billion to support our civilian workforce of 718,000 Americans—men and women across the country and around the world who do critical jobs like helping repair our ships and airplanes, providing logistics support, developing and acquiring weapon systems, supporting survivors of sexual assault, and helping care for our military's wounded, ill, and injured personnel. The budget includes $7.7 billion to support our military families, because they serve too. It includes $3.1 billion to help take care of our wounded warriors, to whom our commitment is and must remain as strong as ever. It includes our enduring pledge to support the families of the fallen, whose loved ones made the ultimate sacrifice on behalf of our country.

IV. ADJUSTING TO STRATEGIC CHANGE

Another significant portion of our budget goes toward DOD's current operations all around the world, in every domain, to help defend our country, our allies, and our interests. Our budget's investments and programming decisions in this area reflect my commitment *to helping the President address key national security challenges,* and my priorities for how we must adjust to strategic change—in countering terrorists, whether ISIL, al Qaeda, or others; in taking a strong and balanced approach to deter Russian aggression; in operationalizing our rebalance to the Asia-Pacific; in deterring Iranian aggression and malign influence; in standing alert on the Korean Peninsula; and in addressing threats from multiple directions in cyber, space, and electronic warfare. We don't have the luxury of choosing between these challenges; we must and will address them all, and not only be prepared across the spectrum of conflict, but also for the possibility of multiple conflicts in overlapping timeframes.

Countering Terrorism

It is clear that our mission of countering terrorists and other violent extremists around the world will be with us for some time. The Department of Defense has strong counterterrorism capabilities, and we continue to deploy them to protect America.

Dealing ISIL a Lasting Defeat

We must and will deal ISIL a lasting defeat, which is why the budget provides $7.5 billion in fiscal year 2017 for Operation Inherent Resolve. This investment will be critical to continuing to implement and accelerate the coalition military campaign plan that the United States has developed, that our key allies support, and that focuses on three military objectives: One, destroy the ISIL parent tumor in Iraq and Syria by attacking its two power centers in Mosul, Iraq and Raqqa, Syria; these cities constitute ISIL's military, political, economic and ideological centers of gravity, which is why our plan has big arrows pointing toward both. Two, combat the emerging metastases of the ISIL tumor worldwide wherever they appear. Three, our most important mission, which is to protect the Homeland.

To eliminate the parent tumor in Iraq and Syria, DOD is enabling local, motivated forces with critical support from a global coalition wielding a suite of capabilities-ranging from airstrikes, special forces, cyber tools, intelligence, equipment, mobility and logistics, training, advice and assistance. It must be local forces who deliver ISIL a lasting defeat, because only they can secure and govern the territory by building long-term trust within the populations they liberate. We can and will enable such local forces, but we cannot substitute for them. Accordingly, the budget's investment in the counter-ISIL campaign includes $630 million for training and equipping the Iraqi Security Forces, and $250 million for enabling Syrian anti-ISIL forces.

This is a worthy investment, as we've already started to see our investments over the last several months start to pay off. For example, it was Iraqi soldiers who took back the Ramadi city center, reversing a loss the Iraqi army suffered last spring. Our support to them included advanced training, tactics, air support, and the portable bridges that carried the Iraqi military across the Euphrates River and into the decisive fight. Ramadi, like recent Iraqi gains in Bayji, Tikrit, and Sinjar, demonstrates that the approach we are taking is having an effect as Iraqis prepare for what will be a tough fight for Mosul. Likewise in Syria, local anti-ISIL forces we've enabled with equipment and ammunition have had successes in Tal Abyad, al-Hawl, the Tishreen Dam, and Shaddadi. It is imperative to keep building on this momentum.

As we work with our partners to destroy ISIL's parent tumor in Iraq and Syria, we must also recognize that ISIL is metastasizing in areas like North and West Africa and Afghanistan. Having taken out ISIL's leader in Libya in November, we are also now prepared to step up pressure on ISIL in Afghanistan to check their ambitions there as well.

Finally, at the same time that we accelerate our campaign, so must every one of our coalition partners—there can be no free riders. That's why last month in Brussels I convened the first-ever meeting of defense ministers from 27 other countries involved in the military coalition to defeat ISIL to follow up after I personally reached out to dozens of defense ministers to urge them to consider filling critical military and non-military needs in the campaign. I'm gratified to report that coalition members responded to our challenge—and not only NATO allies like Canada and the Netherlands, but also Gulf nations, including Saudi Arabia and the United Arab Emirates. In sum, nearly 90 percent of the countries participating in the coalition's military campaign have either stepped up their role or committed to do so in the coming days. Their decisions to expand air operations, send more trainers, provide logistical support, help with reconstruction, or make other contributions will all help our coalition intensify the counter-ISIL campaign and bring about ISIL's lasting defeat.

None of this changes the fact that our counter-ISIL campaign is a hard and complex fight. We have tactical and strategic goals, but they will take time—and, as is often said, the enemy gets a vote. For our part, we will remain focused, committed, and resilient because this is a fight we can, must, and will win, as our efforts to accelerate our campaign are already producing real and promising results.

Ensuring Long-Term Stability in Afghanistan

After more than a decade of war in Afghanistan, we have to make sure our gains there stick, which is why the budget continues to support our two missions in Afghanistan—countering terrorism, and training, advising, and assisting the Afghan National Defense and Security Forces (ANDSF). In support of those two missions, the President announced last fall that the United States will maintain a continued presence of 9,800 troops through most of 2016 before drawing down to 5,500 troops by January 2017. As I told our troops there when I visited them this past December, while Afghanistan remains a dynamic fight, we are determined to ensure that terrorists—regardless of whether they're al Qaeda or ISIL—never have or find safe haven there again.

The budget provides $41.7 billion in fiscal year 2017 for Operation Freedom's Sentinel—including funding to support our posture in U.S. Central Command, the full funding of $3.4 billion to support the ANDSF, and $1.4 billion to support other coalition partners. Importantly, this allows us to continue strengthening and developing the ANDSF's aviation, logistics, intelligence, and special operations capabilities, with the intent of reducing their dependency on us over time. Also, in addition to upholding our commitments to Afghanistan, the Afghan people, and other partners, the budget reflects that the United States will retain several key locations in 2016 and beyond, including facilities in Kabul, Bagram, Jalalabad, and Kandahar. As we do so, the United States will support the continuation of the NATO mission in Afghanistan in 2016 and beyond, and continue to consult with our NATO allies and partners to ensure that the U.S. and NATO missions in Afghanistan are mutually supportive.

Our continued presence in Afghanistan is not only a sensible investment to counter threats that exist and stay ahead of those that could emerge in this volatile region; it also supports the willing partner we have in the government of Afghanistan. It is in the United States' interest to help them succeed, for the benefit of their security, our security, the region and the world.

Establishing an Alternative to the Detention Facility at Guantanamo

The Defense Department is resolutely committed to responsibly closing the detention facility at Guantanamo Bay through the establishment of an alternative detention facility. I share the President's belief—and the belief of many in Congress—that doing so would benefit our national security, which is why DOD will continue to transfer Guantanamo detainees to other countries when we have substantially mitigated any security risks to the United States.

Over the last four months, we completed transfers for 16 detainees, bringing the population to 91. Like every transfer that came before them, the decision to transfer these detainees happened only after a thorough review by me and other senior security officials of our Government.

That said, because many of the remaining detainees currently cannot be safely transferred to another country, we need an alternative to this detention facility. Therefore, I support the President's plan to establish and bring those detainees to an appropriate, secure, alternative location in the United States. I appreciate that Congress has indicated a willingness to consider such a proposal, and, in accordance with the 2016 National Defense Authorization Act, DOD delivered that plan to Congress in February. We look forward to working with Congress to identify the most appropriate design, legislative foundation, and geographic location for future detention and to lift the restrictions preventing the responsible closure of the facility at Guantanamo.

Supporting and Maintaining our Counterterrorism Capabilities

In addition to the specific funds outlined above, the budget also reflects other investments we're making in DOD's posture to ensure we can counter terrorism effectively wherever it challenges us. For example, the budget sustains our robust funding for U.S. Special Operations Command, allocating $10.8 billion in fiscal year 2017. To bolster our partners in fighting terrorism, it requests $1 billion for our Counterterrorism Partnerships Fund. It supports the development of DOD's transregional counterterrorism strategy, which I'd like to outline now.

The terrorist threat is continually evolving, changing focus, and shifting location, requiring us to be flexible, nimble, and far-reaching in our response. Accordingly, the Defense Department is leveraging the existing security infrastructure we've already established in Afghanistan, the Middle East, East Africa, and Southern Europe, so that we can counter transnational and transregional terrorist threats like ISIL and others in a sustainable, durable way going forward. From the troops I visited in Morón, Spain last October to those I visited in Jalalabad, Afghanistan last December, these locations and associated forces in various regions help keep us postured to respond to a range of crises, terrorist and other kinds. In a practical sense, they enable our crisis response operations, counter-terror operations, and strikes on high-value targets, and they help us act decisively to prevent terrorist group affiliates from becoming as great of a threat as the main entities themselves. This transregional approach is already giving us the opportunity and capability to react swiftly to incidents and threats wherever they occur, and it maximizes our opportunities to eliminate targets and leadership. An example of this in action was our November strike on Abu Nabil, ISIL's leader in Libya, where assets from several locations converged to successfully kill him. To help implement this strategy, including in the fight against ISIL and its metastasis beyond Iraq and Syria, the budget includes an additional $175 million in fiscal year 2017—$9 million to help bolster our posture in the Levant, and $166 million to help us better address threats in North and West Africa in conjunction with our European partners.

Because the accelerating intensity of our precision air campaign against ISIL in Iraq and Syria has been depleting our stocks of some of the GPS-guided smart bombs and laser-guided rockets we use against terrorists the most, the budget invests $1.8 billion in fiscal year 2017 to buy over 45,000 more of them. Furthermore, DOD is also exploring increasing the production rate of these munitions in our industrial base—calling on America's great arsenal of democracy to help us and our partners finish the job of defeating ISIL.

Also, because our remotely-piloted intelligence, surveillance, and reconnaissance (ISR) aircraft play an important role in countering terrorism, the budget includes $1.2 billion for fiscal year 2017 and $4.5 billion over the FYDP to increase the number of around-the-clock permissive ISR combat air patrols from 70 today to 90 by the end of fiscal year 2018. Using a mix of MQ–9 Reapers, Extended Range Reapers, and MQ–1C Advanced Gray Eagles—and comprising 60 patrols from the Air Force, 16 from the Army, and 14 that are Government-owned and flown by contractors for the Air Force and U.S. Special Operations Command—these investments will be critical as the need for ISR continues to increase around the world.

Finally, because it helps us maintain a larger Air Force fighter fleet that can drop more smart bombs in our counter-ISIL air campaign, the budget also further defers the A–10 Thunderbolt's final retirement until 2022. I saw some of the A–10s that are flying bombing missions against ISIL when I was at Incirlik Air Base in Turkey last December, and we need the additional payload capacity they can bring to the fight. Accordingly, we are also changing the rate at which we will phase out the A–10 as we approach 2022, as I will explain later in this testimony.

A Strong and Balanced Strategic Approach to Deter Russia

Despite the progress we've made together since the end of the Cold War, Russia has in recent years appeared intent to erode the principled international order that has served us, our friends and allies, the international community, and also Russia itself so well for so long. In Europe, Russia continues to violate the sovereignty of Ukraine, Georgia, and Moldova, and actively seeks to intimidate its Baltic neighbors. In Syria, Russia has been pouring gasoline on a civil war, fueling the very extremism Russia claims to oppose. At sea, in the air, in space, and in cyberspace, Russian actors have engaged in challenging international norms. Most disturbing, Moscow's nuclear saber-rattling raises questions about Russia's leaders' commitment to strategic stability, their respect for norms against the use of nuclear weapons, and whether they respect the profound caution that nuclear-age leaders showed with regard to brandishing nuclear weapons.

To be clear, the United States does not seek a cold, let alone hot war with Russia. We do not seek to make Russia an enemy, even as it may view us that way. But make no mistake—we will defend our interests, our allies, the principled international order, and the positive future it affords us all. That's why the United States is taking a strong and balanced strategic approach in response to Russia's aggression: strengthening both our allies and ourselves, including through investments in this budget, while also giving Russia the opportunity, if it chooses, to rejoin the international community and work with us where our interests align.

Since Russia began its illegal attempted annexation of Crimea a little over two years ago, DOD's budgets have made valuable investments in reinforcing our NATO allies; for example, contributing to NATO's Very High Readiness Joint Task Force, and stepping up our training and exercises under Operation Atlantic Resolve. This budget builds on that significantly, and breaks new ground by re-envisioning and recommitting to deterring—and, if deterrence fails, defeating—any aggression against our allies in the future. The 20th century NATO playbook was successful in working toward a Europe whole, free and at peace, but the same playbook would not be well-matched to the needs of the 21st century. Together with our NATO allies, we must write a new playbook, which includes preparing to counter new challenges like cyber and hybrid warfare, better integrating conventional and nuclear deterrence, as well as adjusting our posture and presence to adapt and respond to new challenges and new threats.

To further reinforce our NATO allies and build our deterrence posture in the face of Russia's aggression, this budget significantly increases funding for our European Reassurance Initiative to make a total investment of $3.4 billion for fiscal year 2017—more than quadrupling the $789 million that we requested last year—allowing us to increase the amount of prepositioned equipment sets in Europe as well as the number of U.S. Forces, including Reserve forces, rotating through Europe to engage with friends and allies. This increase supports the persistent rotational presence of an armored brigade combat team for 12 months out of the year, which will give us a total of three brigade combat teams continuously present in Europe. It supports more training and exercises with our European friends and allies. It supports more warfighting gear, including forward-stationing equipment for an additional armored brigade combat team by the end of 2017. It supports prepositioning equipment for a division headquarters and other enablers in Europe, such that this equipment—along with assigned Army airborne and Stryker brigade combat teams and Marine Corps heavy vehicles and equipment already in Europe—will allow us to rapidly form a highly-capable combined-arms ground force of division-plus strength that can respond theater-wide if necessary. It helps strengthen our regional air superiority posture—among other things, allowing us to keep an additional F–15C tactical fighter squadron based in Europe, and also improve airfield infrastructure to enhance operations for Air Force fighters and Navy maritime patrol aircraft.

In addition, the budget reflects how we're doing more, and in more ways, with specific NATO allies. Given increased Russian submarine activity in the North Atlantic, this includes building toward a continuous arc of highly-capable maritime patrol aircraft operating over the Greenland-Iceland-United Kingdom gap up to Norway's North Cape. It also includes the delivery of Europe's first stealthy F–35 Joint

Strike Fighters to our British allies. Given Russia's use of hybrid warfare—exemplified by the so-called 'little green men' in Ukraine—the budget supports more rotational presence of U.S. special operations forces exercising in Europe.

The budget also significantly funds important new technologies that, when coupled with revised operational concepts, will ensure we can deter and if necessary win a high-end conventional fight in an anti-access, area-denial environment across all domains and warfighting areas—air, land, sea, space, cyberspace, and the electromagnetic spectrum. While I will address these areas in greater detail later in this posture statement, investments that are most relevant to deterring Russia include new unmanned systems, enhanced ground-based air and missile defenses, new long-range anti-ship weapons, the long-range strike bomber, and also innovation in technologies like the electromagnetic railgun, lasers, and new systems for electronic warfare, space, and cyberspace. The budget also invests in modernizing our nuclear deterrent.

Consistent with our strong and balanced approach, the door will remain open for Russia to reassume the role of respected partner going forward. While that would be greatly welcomed by the United States, and the Department of Defense, it's up to the Kremlin to decide—first by demonstrating a willingness to return to the international community.

Operationalizing the Rebalance to the Asia-Pacific

The budget also supports operationalizing our rebalance to the Asia-Pacific region. In a region home to nearly half the world's population and nearly half the global economy, for 70 years the United States has helped underwrite a stable security environment that allowed the people, economies, and countries in the Asia-Pacific to rise and prosper. We fully intend to continue these efforts so that bright future can be possible for everyone in this important region.

Accordingly, the budget helps improve DOD's geographically distributed, operationally resilient, and politically sustainable posture in the region, through which the United States seeks to preserve peace and stability, and maintain our strategic advantage in an area that's critically important to America's political, economic, and security interests. Investments in the budget reflect how we're moving more of our forces to the region—such as 60 percent of our Navy and overseas Air Force assets—and also some of our most advanced capabilities in and around the region, from F–22 stealth fighter jets and other advanced tactical strike aircraft, to P–8A Poseidon maritime surveillance aircraft, to our newest surface warfare ships. They also reflect how we're developing and implementing new posture initiatives—in places like Guam, the Northern Marianas, the Philippines, Australia, and Singapore, as well as modernizing our existing footprint in Korea and Japan—and continuing to strengthen existing partnerships and develop new ones, from India to Vietnam. They reflect our efforts to support and strengthen a regional security architecture that benefits everyone—from strengthening and modernizing our alliances, to bolstering our ties with the Association of Southeast Asian Nations (ASEAN), to building the security capabilities of our many friends and allies, who increasingly want to do more with us in the region. In support of this effort, the budget fully supports our five-year, $425 million Southeast Asia Maritime Security Initiative begun in fiscal year 2016.

For this region, as it does with Europe, the budget also significantly funds important new technologies to ensure we can deter and if necessary win a high-end conventional fight in an anti-access, area-denial environment across all domains and warfighting areas—air, land, sea, space, cyberspace, and the electromagnetic spectrum. These investments—which I will outline later in this testimony—are important for ensuring our forces can go anywhere, at any time, and succeed in whatever mission we ask of them.

It's important to remember that America's rebalance has never aimed to hold any nation back or push any country down. The United States wants every nation to have an opportunity to rise, because it's good for the region and good for our collective interests. That includes China. As we welcome the growth and prosperity of all Asia-Pacific nations, it is clear that the United States-China relationship will be complex as we continue to balance our competition and cooperation. There are opportunities to improve understanding and to reduce risk with China—for example, we've agreed to four confidence-building agreements, including one meant to prevent dangerous air-to-air encounters. But there remain areas of concern.

For one, the United States joins virtually everyone else in the region in being deeply concerned about the pace and scope of land reclamation in the South China Sea, the prospect of further militarization, as well as the potential for these activities to increase the risk of miscalculation or conflict among claimant states. U.S. military presence in the region is decades-old, has been instrumental in upholding

the rules-based international system, and has laid the foundation for peace and security in the region. Our interest is in maintaining freedom of navigation and overflight, full and unimpeded lawful commerce, and that disputes are resolved peacefully. To accomplish this, we will continue to fly, sail, and operate wherever international law allows. We also expect China to uphold President Xi's pledge not to pursue militarization in the Spratly Islands of the South China Sea.

Also, we are closely watching the long-term, comprehensive military modernization program that China, as well as other countries, continues to pursue. While there is no question that the United States retains a decisive military edge in the Asia-Pacific today, China is investing in capabilities to counter third-party—including the United States—intervention during a crisis or conflict. These capabilities include ballistic and cruise missiles of increasingly greater range and accuracy, counter-space and offensive cyber capabilities, and electronic warfare systems. To maintain a lasting competitive advantage, DOD is taking prudent steps to preserve and enhance deterrence for the long term. The budget reflects this, including with investments to continue adapting our forces, posture, operations, and capabilities to deter aggression, defend our allies, and sustain our military edge in the Asia-Pacific.

Deterring North Korea

The budget also supports investments necessary to deter North Korean provocation and aggression, ensure our forces on the Korean Peninsula remain ready and capable to 'fight tonight' if necessary, and defend against threats emanating from North Korea against the United States and our allies. This includes threats posed by North Korea's nuclear and missile programs, against which DOD is fully capable of defending the U.S. Homeland. Our position has been, and remains, that North Korea must abide by its international obligation to abandon its nuclear and missile programs and stop its provocative behavior.

North Korea's nuclear test on January 6th and its ballistic missile launch on February 7th were highly provocative acts that undermine peace and stability on the Korean Peninsula and in the region. The United States condemns these violations of U.N. Security Council resolutions and again calls on North Korea to abide by its international obligations and commitments. We are monitoring and continuing to assess the situation in close coordination with our regional partners.

DOD remains fully capable of fulfilling U.S. treaty commitments to our allies in the event of a North Korean attack, and we're working with our Republic of Korea allies to develop a comprehensive set of alliance capabilities to counter the growing North Korean ballistic missile threat. I spoke with my South Korean counterpart shortly after the nuclear test, and reiterated our commitments as strong and steadfast allies. Also, a few hours after the ballistic missile launch, the United States and the Republic of Korea jointly announced the start of formal consultations to discuss the feasibility of deploying a Terminal High-Altitude Area Defense (THAAD) system to the Korean Peninsula at the earliest date.

Checking Iran's Malign Influence while Strengthening Regional Friends and Allies

The Middle East presents a kaleidoscope of challenges, but there, as everywhere, DOD's budget—and accordingly our actions and strong military posture—is guided by our North Star of what's in America's interests. Defeating ISIL in Iraq and Syria, which I discussed earlier, is of course one of those interests, but amid this region's complexity and uncertainty, we also have other interests of great importance, which are to deter aggression; to bolster the security of our friends and allies, especially Israel; to ensure freedom of navigation in the Gulf; and to check Iran's malign influence even as we monitor the implementation of the Joint Comprehensive Plan of Action. That's why DOD maintains tens of thousands of American personnel ashore and afloat in the region, along with our most sophisticated ground, maritime, and air and ballistic missile defense assets.

While the Joint Comprehensive Plan of Action places significant limitations on Iran that will effectively cut off its pathways to the fissile material for a nuclear bomb, it does not limit in any way what DOD can and will do to pursue our defense strategy in the region. It places no limits on our forces, our partnerships and alliances, our intensive and ongoing security cooperation, or on our development and fielding of new military capabilities—capabilities we will continue to advance in order to provide all options, as the President has directed, should Iran walk away from its commitments under this deal. If Iran were to commit aggression, our robust force posture ensures we can immediately respond and rapidly surge an overwhelming array of forces into the region, leveraging our most advanced capabilities married with sophisticated munitions that put no target out of reach.

This budget invests in maintaining those abilities going forward, which is important, because Iran and its proxies will still present security challenges. Iran supports Assad in Syria, backs Hezbollah in Lebanon, and is contributing to disorder in Yemen, while still directing hostility and violence to our closest ally in the region, Israel. To continue to meet our commitments and enhance our cooperation with our friends and allies in the region, especially Israel, the budget makes critical investments—including $146 million to support Israel in fiscal year 2017. This reflects our unshakeable commitment to Israel and its security, with funding for Iron Dome, David's Sling, Arrow, and other cooperative defense programs—not only ensuring that Israel can defend itself, but also preserving and enhancing Israel's qualitative military edge, which is a cornerstone of our defense relationship.

Meanwhile, with critical investments in other areas, the budget enables DOD to continue to advance our preparations, posture, partnerships, and planning to preserve the President's options for any contingency. It strengthens the regional security architecture in a way that blunts Iran's ability to coerce its neighbors. It helps us stay ahead of the risks posed by Iran's ballistic missiles, naval forces, cyber capabilities, and support for terrorists and others in the region.

Addressing Threats in Cyber, Space, and Electronic Warfare

Even as we make adjustments in our budget to address the five evolving challenges posed by Russia, China, Iran, North Korea, and terrorist groups like ISIL and al Qaeda, we are also making adjustments to address emerging and increasing threats that transcend individual nations and organizations. That's because, as we confront these five challenges, we know we'll have to deal with them across all domains—and not just the usual air, land, and sea, but also particularly in the areas of cyber, space, and electronic warfare, where our reliance on technology has given us great strengths, but also led to vulnerabilities that potential adversaries are eager to exploit.

As I made clear when I released DOD's new cyber strategy last April, we have three missions in cyberspace—first and foremost, to defend our networks, systems, and information; second, to help defend the nation and our interests from cyberattacks of significant consequence, working with other departments and branches of Government; and third, to provide options that can augment our other military systems. Given the increasing severity and sophistication of the threats and challenges we're seeing in cyberspace—ranging from ISIL's pervasive online presence to the data breaches at the Office of Personnel Management—the budget puts a priority on funding our cyber strategy, investing a total of $6.7 billion in fiscal year 2017 and $34.6 billion over the FYDP. This is a $900 million increase over last year's budget. While these funds will help us continue to develop, train, and equip our growing Cyber Mission Force, and also make new technological investments to strengthen our cyber defenses and capabilities—both of which I address later in this testimony—the budget also reflects our efforts to make a fundamental shift toward a culture of accountability in cyberspace, from instituting a DOD-wide cybersecurity scorecard to monitor our progress to increasing individual knowledge about practical ways to defend against cyber intrusions. Our people understandably hold themselves to very high standards when it comes to caring for, attending to, using, and being accountable for the weapons they carry into battle, and we must do the same when it comes to interacting with our networks and cyber capabilities—not only among our cyber warriors and IT professionals, but throughout the DOD workforce.

While at times in the past space was seen as a sanctuary, new and emerging threats make clear that's not the case anymore, and we must be prepared for the possibility of a conflict that extends into space. This means that as we continue to ensure our access to space so we can provide capabilities like reconnaissance, GPS, and secure communications that enable and enhance our operations in other domains, we must also focus on assuring and defending these capabilities against aggressive and comprehensive counter-space programs of others. Though competitors may understand our reliance on space, we will not let them use it against us, or take it away. As I will discuss later in this testimony, this budget makes important investments to do just that—sustaining and building on the major shifts DOD began funding in last year's budget submission—with a total of more than $22 billion for space in fiscal year 2017. With the presence of so many commercial space endeavors, we want this domain to be just like the oceans and the Internet: free and open to all.

Finally, high-end competitors have also invested in electronic warfare systems as a cost-effective way to challenge the United States and try to blunt our technological advantage. By jamming our radars, communications, and GPS, these systems would seek to disrupt the integrated capabilities that allow our forces to identify, target, reach, and destroy an enemy with precision. We cannot allow that to happen, which

is why this budget deliberately invests in buying more electronic protection and resiliency for our current systems as well as developing more advanced capabilities. I will address these investments in more detail later in this testimony.

V. SEIZING OPPORTUNITIES FOR THE FUTURE

The other significant share of our budget goes toward making sure DOD will be ready for the future. Our budget's investments and programming decisions in this area reflect my commitment *to create a Defense Department that's open to change and new ideas to ensure a better future for both DOD and the nation,* and my priorities in doing so. These are best understood through the four key pillars of this commitment—namely, updating and refining warfighting strategies, operational concepts, and tactics; driving smart and essential technological innovation; building the force of the future; and reforming the DOD enterprise.

While I will describe what we're doing in each of those areas momentarily, the dynamic strategic environment I described earlier in this testimony explains why such change is so important—not for the sake of change, but for the security of this country. We cannot let those challenges overtake us; we have to stay ahead of them and stay the best. That's why as Secretary of Defense I've been pushing the Pentagon to think outside our five-sided box.

Updating and Refining Warfighting Strategies, Operational Concepts, and Tactics

Because our military has to have the agility and ability to win both the fights we're in, the wars that could happen today, and the wars that could happen in the future, we're always updating our plans and developing new operational approaches to account for any changes in potential adversary threats and capabilities, and to make sure that the plans apply innovation to our operational approaches—including ways to overcome emerging threats to our security, such as cyberattacks, anti-satellite weapons, and anti-access, area denial systems. We're building in modularity that gives our chain of command's most senior decision-makers a greater variety of choices. We're making sure planners think about what happens if they have to execute their plan at the same time as another contingency is taking place, so they don't fall into the trap of presuming the contingency they're planning for would be the only thing we'd be doing in the world at that time. We're injecting agility and flexibility into our processes, because the world, its challenges, and our potential opponents are not monolithic, and we must be just as dynamic to stay ahead of them.

As I mentioned earlier, DOD is continuing to embark on a force-wide, all-service transition from an era focused on counterinsurgency operations to an era focused on the full spectrum of military operations. While we do so for many important reasons, it's also important to note that we don't want to forget or turn our back on counterinsurgency, but rather enable most of our forces to be capable of doing a lot more than just that. A smaller segment of our force will still specialize in these skills, and DOD will retain the ability to expand our operational capacity for counterinsurgency missions should it become necessary.

The transition to full-spectrum operations is and will be coupled with demonstrations to clearly signal it and make that signal credible, which is key to conventional deterrence. The same is true for our investments in capabilities—in new technologies, new operational concepts, and also innovative ways for how we use what we already have—these must and will be demonstrated as well. This is accounted for in the budget, as are other investments we're making to recommit ourselves to deterrence across the strategic, operational, and tactical levels of conflict.

Recognizing the immense value that wargaming has historically had in strengthening our force in times of strategic, operational, and technological transition—such as during the interwar years between World War I and World War II, when air, land, and naval wargamers developed innovative approaches in areas like tank warfare and carrier aviation—this budget makes significant new investments to reinvigorate and expand wargaming efforts across the Defense Department. With a total of $55 million in fiscal year 2017 as part of $526 million over the FYDP, this will allow us to try out nascent operational concepts and test new capabilities that may create operational dilemmas and impose unexpected costs on potential adversaries. The results of future wargames will be integrated into DOD's new wargaming repository, which was recently established to help our planners and leaders better understand and shape how we use wargames while also allowing us to share the insights we gain across the defense enterprise.

Driving Smart and Essential Technological Innovation

The investments this budget makes in technology and innovation, and the bridges it helps build and rebuild, are critical to staying ahead of future threats in a chang-

ing world. When I began my career, most technology of consequence originated in America, and much of that was sponsored by the Government, especially DOD. Today, not only is much more technology commercial, but the competition is global, with other countries trying to catch up with the advances we've enjoyed for decades in areas like precision-guided munitions, stealth, cyber, and space. Now, as we have in the past, DOD must invest to ensure America pioneers and dominates these and other technological frontiers.

DOD is therefore pursuing new technology development along with new operational concepts, and new organizational constructs—all of which are reflected in or supported by this budget submission—to maintain our military's technological superiority and ensure we always have an operational advantage over any potential adversary. How we do this is important, because while the Cold War arms race was characterized mostly by strength, with the leader simply having more, bigger, or better weapons, this era of technological competition is uniquely characterized by an additional variable of speed, such that leading the race now depends on who can out-innovate faster than everyone else. It's no longer just a matter of what we buy; what also matters is how we buy things, how quickly we buy them, whom we buy them from, and how quickly and creatively we're able to upgrade them and repurpose them to be used in different and innovative ways to stay ahead of future threats.

In particular, this means leveraging the capability of current and emerging technologies, including commercial technologies wherever appropriate. It means demonstrating and seeding investments in new capabilities and concepts to counter advanced anti-access, area-denial challenges across all domains and in every region where they persist—a particular focus of DOD's effort to develop a third offset strategy. It means investing in and operationalizing our security by leveraging advances in cyber, space, electronic warfare, biotechnology, artificial intelligence, and other areas. Our technologies and capabilities must be able to operate so that no matter what any of our enemies might throw at them, they are able to defeat attempts to be hacked.

Accordingly, this budget invests a total of $183.9 billion in fiscal year 2017, and $951 billion over the FYDP, to help research, develop, test, evaluate, and procure the right technology and capabilities our military will need to deter and if necessary fight and win full-spectrum conflicts in the future. For the second year in a row, the budget increases funding for our research and development accounts, which total $71.8 billion in fiscal year 2017. That includes $12.5 billion specifically invested in science and technology to support groundbreaking work happening in the military services, in our dozens of DOD labs and engineering centers across the country, and in the Defense Advanced Research Projects Agency (DARPA) to develop and advance disruptive technologies and capabilities in areas like undersea systems, hypersonics, electronic warfare, big data analytics, advanced materials, energy and propulsion, robotics, autonomy, and advanced sensing and computing.

At the same time that DOD is making investments in technologies themselves, we're also investing in building and rebuilding bridges with America's vibrant, innovative technology community and forging more connections with the commercial technology base—and it's reflected in our budget. In fiscal year 2017, this includes $45 million for our Defense Innovation Unit-Experimental (DIUx), which we opened in Silicon Valley last August to build relationships and better tap into the region's innovation ecosystem. It also includes $40 million for our pilot program with the independent, non-profit startup backer In-Q–Tel, leveraging its venture capital model to help find innovative solutions for some of our most challenging problems. It includes $137 million to support our public-private partnership-funded Manufacturing Innovation Institutes, including the one focused on flexible hybrid electronics that I announced in Silicon Valley last August. In all these areas, similar to how DOD's historic investments in things like GPS and the Internet later went on to yield great benefits for not just our security but also our society, we hope the investments we're making in some of these fields along with our partners in the technology industry will lead to incredible advances that today we can only imagine.

Importantly, technological innovation must be done in concert with operational innovation. It's not enough to have or create new technologies or weapon systems; how they are used is key. The budget reflects work DOD has been undertaking in this area though multiple lines of effort. First, there's our Long-Range Research and Development Planning Program—an effort named after the mid-1970s project that brought together a cross-section of military, academic, and private-sector experts who paved the way to a future of GPS-guided smart bombs, battle networks, and stealth—and also our Advanced Capability and Deterrence Panel. Both focus on identifying and charting longer-term, leap-ahead investments for strategies and capabilities that will give us an advantage several decades from now, and together

they make up nearly 60 percent of our science and technology investments in this budget submission.

Now, to focus on maintaining our near-term advantage, DOD has an office that we don't often talk about, but that I want to highlight today. It's called the Strategic Capabilities Office (SCO). I created SCO in 2012 when I was Deputy Secretary of Defense to reimagine existing DOD, intelligence community, and commercial systems by giving them new roles and game-changing capabilities to confound potential opponents. I picked a talented physicist to lead it. SCO is incredibly innovative, but also has the rare virtue of rapid development and the even rarer charter to keep current capabilities viable for as long as possible. It's good for both troops and taxpayers alike.

SCO is focused on thinking differently, which is incredibly important to innovation when it comes to technological capabilities. Thinking differently put us in space and on the moon. It put computers in our pockets and information at our fingertips. It's how we came to have airplanes that take off from the decks of ships, nuclear submarines beneath the seas, and satellite networks that take pictures of the world and show us where we are in it. This kind of bold, innovative thinking isn't lost to history. It's happening every day, in SCO and many other places throughout the Department of Defense.

Most people don't often hear about it because most of its work is classified; however, SCO has been a tremendously useful part of DOD. It's received large support from all the services, as well as our combatant commands, the Joint Chiefs of Staff, the intelligence community, and also Congress—with its budget growing from $140 million in its first year, fiscal year 2014, to reaching $845 million for fiscal year 2017 in this year's budget submission. To show the return we're getting on those investments, I'd like to highlight some projects SCO has been working on that we're funding in the budget.

First is a project focused on advanced navigation, where SCO is taking the same kinds of micro-cameras and sensors that are littered throughout our smartphones today, and putting them on our Small Diameter Bombs to augment their targeting capabilities. This will eventually be a modular kit that will work with many other payloads—enabling off-network targeting through commercial components that are small enough to hold in your hand.

Another SCO project uses swarming, autonomous vehicles in all sorts of ways, and in multiple domains. For the air, they've developed micro-drones that are really fast, and really resilient—they can fly through heavy winds and be kicked out the back of a fighter jet moving at Mach 0.9, like they did during an operational exercise in Alaska last year, or they can be thrown into the air by a soldier in the middle of the Iraqi desert. For the water, they've developed self-driving boats, which can network together to do all sorts of missions, from fleet defense to close-in surveillance—including around an island, real or artificial, without putting our sailors at risk. Each one leverages the wider world of technology. For example, the micro-drones use a lot of commercial components and 3D printing. The boats build on some of the same artificial intelligence algorithms that NASA's Jet Propulsion Laboratory wrote for the Mars lander.

SCO also has a project on gun-based missile defense, where we're taking the same hypervelocity smart projectile developed for the electromagnetic railgun, and using it for point defense by firing it with artillery we already have in our inventory—including the five-inch guns at the front of every Navy destroyer, and also the hundreds of Army Paladin self-propelled howitzers. This way, instead of spending more money on more expensive interceptors, we can turn past offense into future defense—defeating incoming missile raids at much lower cost per round, and thereby imposing higher costs on the attacker. In fact, we tested the first shots of the hypervelocity projectile out of a Paladin earlier this year, and we found that it also significantly increases the range.

There's also a SCO project that we're calling the arsenal plane, which takes one of our oldest aircraft platforms, and turns it into a flying launch pad for all sorts of different conventional payloads. In practice, the arsenal plane will function as a very large airborne magazine, networked to fifth-generation aircraft that act as forward sensor and targeting nodes—essentially combining different systems already in our inventory to create wholly new capabilities.

The last SCO project I want to highlight is how we're creating a brand new capability with the SM–6 missile, an interceptor that's designed to launch from our Navy's surface ships and be highly maneuverable and aerodynamic to stop incoming ballistic and cruise missiles in the atmosphere. It's one of our most modern and capable munitions—and thanks to work done by SCO, we've been able to modify the SM–6 so that in addition to missile defense, it can also target enemy ships at sea. This new anti-ship mode makes the SM–6 doubly useful, taking the defensive speed

and maneuverability already sitting in our Aegis destroyers' launch cells and leveraging it for offensive surface warfare lethality. That makes it a potent new capability for our fleet, and also a good deal for the taxpayer by using the same thing twice. We already know this works; it was fully tested this past January to great success. As I will address later in this testimony, this new operational concept is strongly reflected in our 2017 budget.

Those are just a few projects that SCO has worked on so far—and they're working on a lot more, including some surprising ones.

Now, with all of that in mind—from why we need to invest in technological innovation, to how we're doing it—let me address the specific investments this budget makes in technologies and capabilities to deter, and if necessary fight and win, a full-spectrum conventional war against even the most high-end of adversaries. In concert, they will help maintain our military's edge both under and on the sea, on land, in the air, in space, in cyber and electronic warfare, and in the modernization and maintenance of our nuclear enterprise.

Maritime Investments

In the maritime domain, the budget refocuses our Navy on building lethality for high-end conflicts while continuing to grow the battle fleet to meet, but not exceed, the department's warfighting posture requirement of 308 ships. Our investments reflect an emphasis on payloads over platforms, on the ability to strike from sanctuary quickly so that no target is out of reach, and on closing capability shortfalls that have developed over the last several years.

First, the budget maximizes our undersea advantage—leveraging and growing our commanding lead in an area where the U.S. military should be doing more, not less, going forward. It provides funding for important payloads and munitions, including $170.8 million in fiscal year 2017 and $1.5 billion over the FYDP for an improved heavyweight torpedo as well as research and development for an advanced lightweight torpedo to stay ahead of existing and emerging undersea challenges. It includes $5.2 billion in fiscal year 2017 and $29.4 billion over the FYDP to buy nine *Virginia*-class attack submarines over the next five years; four of those submarines—up from three in last year's budget—will be equipped with the versatile Virginia Payload Module that can more than triple each submarine's strike capacity from 12 Tomahawk land attack missiles to 40. The budget also invests $500 million in fiscal year 2017, and $3.4 billion over the FYDP, to upgrade 49 of our submarines' combat systems and enhance underwater acoustics on nine of our existing *Virginia*-class submarines. It increases funding for unmanned undersea vehicles (UUVs) by over $100 million in fiscal year 2017, part of a total $173 million in fiscal year 2017 and $1.2 billion over the FYDP that invests in, among other areas, rapid prototyping of UUVs in multiple sizes and diverse payloads—which is important, since UUVs can operate in shallow waters where manned submarines cannot. It includes $2.2 billion in fiscal year 2017 and $6.4 billion over the FYDP to continue procuring the advanced P–8A Poseidon maritime patrol and surveillance aircraft. Together, all these investments—totaling $8.2 billion in fiscal year 2017, and $41.9 billion over the next five years—will ensure we continue to have the most lethal undersea and anti-submarine force in the world.

Second, the budget makes significant investments to bolster the lethality of our surface fleet forces, so they can deter and if necessary prevail in a full-spectrum conflict against even the most advanced adversaries. It invests $597 million in fiscal year 2017, and $2.9 billion over the FYDP, to maximize production of the SM–6 missile, one of our most modern and capable munitions, procuring 125 in fiscal year 2017 and 625 over the next five years—and this investment is doubly important given the SM–6's new anti-ship capability. It also invests in developing and acquiring several other key munitions and payloads—including $1 billion in fiscal year 2017, and $5.8 billion over the FYDP, for all variants of the SM–3 high-altitude ballistic missile interceptor; $340 million in fiscal year 2017, and $925 million over the FYDP, for the Long-Range Anti-Ship Missile; $221 million in fiscal year 2017, and $1.4 billion over the FYDP, for the Advanced Anti-Radiation Guided Missile, including its extended range version; and $435 million in fiscal year 2017, as part of $2.1 billion over the FYDP, for the most advanced variant of the Tactical Tomahawk land-attack missile, which once upgraded can also be used for maritime strike.

Third, the budget reflects decisions we've made to ensure that we look at our overall warfighting posture, rather than only the presence that contributes to it, in determining whether our maritime forces can deter and if necessary fight and win a full-spectrum conflict. Having grown the size and the capability of our surface and subsurface fleet over the last seven years, this budget will continue to do both. It will ensure we meet the department's 308-ship posture requirement—indeed, growing the battle fleet to 308 ships by the end of the FYDP—and it will make our naval

forces as a whole more capable, more survivable, and more lethal than they would have been otherwise.

The budget invests $3.4 billion in fiscal year 2017 and $18.3 billion over the FYDP to continue to buy two DDG–51 *Arleigh Burke*-class guided missile destroyers each year over the next five years—a total of 10 over the FYDP—as well as $400 million in fiscal year 2017 and $2.8 billion over the FYDP for modernizing our destroyers, 12 of which will also receive upgrades to their combat systems. It continues to support 11 carrier strike groups, investing $2.7 billion in fiscal year 2017 and $13.5 billion over the FYDP for new construction of *Ford*-class carriers, as well as $2 billion in fiscal year 2017 and $8.9 billion over the FYDP for midlife reactor refueling and overhauls on our current carrier fleet. As I will discuss in the reform section of this testimony, it supports modernizing our guided missile cruisers—providing them with more capability and a longer lifespan while freeing up significant funds that can be put toward a variety of uses.

I'd like to now address the Littoral Combat Ship (LCS), where we made an important tradeoff so we could put more money in submarines, Navy fighter jets, and many other critical areas. As such, the budget takes a new approach to the LCS and its associated frigate—buying a total of 40, not the 52 or more that were planned starting back in 2002. Let me explain why. First, to be clear, we're investing in LCS and frigates because we need the capability they provide, and for missions like minesweeping and anti-submarine warfare, they're expected to be very capable. But now, in 2016, we have to further balance our shipbuilding investments among guided missile destroyers and *Virginia*-class attack submarines. We face competitors who are challenging us on the open ocean with new submarines, ships, aircraft, and missiles—advanced capabilities we haven't had to contend with in a long time, meaning that we must now invest more in higher-end capabilities across our own fleet. The department's warfighting analysis called for 40 small surface combatants, so that's how many we're buying. Over the next 10 years, this will let us invest almost $8 billion more into highly lethal ships and capabilities—all the while increasing both the number of ships and the capability of our battle fleet. While this will somewhat reduce the number of LCS available for presence operations, that need will be met by higher-end ships, and it will ensure that the warfighting forces in our submarine, surface, and aviation fleets have the necessary capabilities to defeat even our most advanced potential adversaries. Under this rebalanced plan, we will still achieve our 308-ship goal within the next five years, and we will be better positioned as a force to effectively deter, and if necessary defeat, even the most advanced potential adversaries.

Land Investments

To ensure our ground forces have the capabilities to counter emerging threats and the demonstrated ability to deter and if necessary fight and win a full-spectrum conflict, the budget will help provide our Army, Marine Corps, and special operations forces with greater lethality in several forms. This includes a next-generation shoulder-launched weapon, a life extension program as well as a replacement for the Army Tactical Missile System (ATACMS) that can be used for improved counter-battery and long-range strike, and increased firepower for Stryker armored fighting vehicles. Together these investments comprise $780 million in fiscal year 2017 and $3.6 billion over the FYDP.

Additionally, the budget invests $735 million in fiscal year 2017, and $6.8 billion over the FYDP, in the Joint Light Tactical Vehicle intended to replace the military's Humvees—procuring more than 2,000 vehicles in fiscal year 2017, and a total of more than 17,700 vehicles over the next five years. It also invests $159 million in fiscal year 2017, and $1.7 billion over the FYDP, in the Amphibious Combat Vehicle, which will replace the Marine Corps' aging Amphibious Assault Vehicle—helping procure over 200 vehicles over the next five years. As I discuss later in the reform section of this testimony, it supports the Army's ongoing Aviation Restructure Initiative—investing $1.1 billion for 52 AH–64 Apache attack helicopters in fiscal year 2017, and $5.7 billion for 275 Apaches over the FYDP, as well as $1 billion for 36 UH–60 Black Hawk utility helicopters in fiscal year 2017, and $5.6 billion for 268 Black Hawks over the FYDP.

The budget also invests $9.1 billion for missile defense in fiscal year 2017, and $47.1 billion over the FYDP. This reflects important decisions we've made to strengthen and improve our missile defense capabilities—particularly to counter the anti-access, area-denial challenge of increasingly precise and increasingly long-range ballistic and cruise missiles being fielded by several nations in multiple regions of the world. Instead of spending more money on a smaller number of more traditional and expensive interceptors, we're funding a wide range of defensive capabilities that can defeat incoming missile raids at much lower cost per round, and thereby impose

higher costs on the attacker. The budget invests in improvements that complicate enemy targeting, harden our bases, and leverage gun-based point defense capabilities—from upgrading the Land-Based Phalanx Weapons System, to developing hypervelocity smart projectiles that as I mentioned earlier can be fired not only from the five-inch guns at the front of every Navy destroyer, but also the hundreds of Army M109 Paladin self-propelled howitzers. Additionally, the budget's missile defense investments maintain DOD's commitment to improving our Homeland and theater defense systems—as we're increasing the number of deployed Ground-Based Interceptors (GBIs) from 30 to 44, redesigning the exo-atmospheric kill vehicle to improve the reliability of the Ground-Based Midcourse Defense system, and funding improvements and follow-on concept development for the Terminal High-Altitude Area Defense (THAAD) system. Specifically, we're investing $1.2 billion in fiscal year 2017 and $5.8 billion over the FYDP for the Ground-based Midcourse Defense program; for THAAD, we're spending $640 million in fiscal year 2017 and $3.6 billion over the FYDP, which includes procuring 24 interceptors in fiscal year 2017 and 149 over the FYDP; and, to research, develop, and deploy a new Long-Range Discrimination Radar, we're investing $317 million in fiscal year 2017 and $1 billion over the FYDP.

Air Investments

To ensure the U.S. military's continued air superiority and global reach, the budget makes important investments in several areas—and not just platforms, but also payloads. For example, it invests $2.4 billion in fiscal year 2017 and $8 billion over the FYDP in a wide range of versatile munitions—including buying more Small Diameter Bombs, JDAMs, Hellfires, and AIM–120D air-to-air missiles. We are also developing hypersonics that can fly over five times the speed of sound.

The budget continues to buy the stealthy, fifth-generation F–35 Lightning II Joint Strike Fighter. It includes $10.1 billion in fiscal year 2017 and $56.3 billion over the FYDP to procure a total of 404 F–35s across the force through 2021—43 F–35As for the Air Force in fiscal year 2017 as part of 243 to be purchased over the FYDP, 16 F–35Bs for the Marine Corps in fiscal year 2017 as part of 97 to be purchased over the FYDP, and 4 F–35Cs for the Navy and Marine Corps in fiscal year 2017 as part of 64 to be purchased over the FYDP. This represents a slight deferral in Air Force F–35 procurement, which we're doing in order to free up funds to maintain a larger-size Air Force of 55 tactical fighter squadrons, and to improve avionics, radar, and electronic warfare systems in legacy bomber and fighter aircraft like the F–15, F–16, B–1, B–2, and B–52 fleets—increasing their lethality, survivability, and therefore usefulness in a full-spectrum conflict. At the same time, it also represents an increase in the Navy and Marine Corps' F–35 procurement, which is important to ensure sufficient high-end capability and numbers in our aircraft carriers' tactical fighter fleet.

Additionally, the budget invests $1.4 billion in fiscal year 2017 and $12.1 billion over the FYDP for continued development of the B–21 Long-Range Strike Bomber, as well as $3.1 billion in fiscal year 2017 and $15.7 billion over the FYDP to continue upgrading our aerial tanker fleet—buying 15 KC–46A Pegasus refueling tankers in fiscal year 2017 as part of 75 aircraft to be purchased over the FYDP.

The budget also reflects important decisions regarding future unmanned aerial systems, such as the Navy's Carrier-Based Aerial Refueling System (CBARS), formerly known as the Unmanned Carrier-Launched Air Surveillance and Strike (UCLASS) program—by focusing in the near-term on providing carrier-based aerial refueling, we're setting the stage for a future unmanned carrier air wing. With this approach, the Navy will be able to quickly and affordably field the kinds of unmanned systems that its carrier air wings need today, while laying an important foundation for future, more capable unmanned carrier-based platforms. We know we need to ensure aircraft can operate off the carrier in high-threat environments, and we're working hard to make them unmanned—it's just that the UCLASS program as previously structured was not the fastest path to get us there. This approach will allow us to get started integrating unmanned aircraft onto our aircraft carriers affordably and as soon as possible.

Furthermore, to maximize the capabilities and extend the reach of all our airborne systems, the budget reflects how we're expanding manned-unmanned teaming—from buying Navy MQ–4C Triton unmanned maritime surveillance and patrol aircraft, which can be paired with our P–8A Poseidon aircraft for a variety of missions; to buying Army AH–64 Apache attack helicopters that can pair with MQ–1C Gray Eagle scouts; to buying Air Force F–35s that can network with both payloads and platforms.

Cyber and Electronic Warfare Investments

This budget significantly increases our cyber capabilities, with new investments totaling over $900 million in fiscal year 2017 compared to last year's budget.

Because defending our networks is and must be DOD's number-one mission in cyberspace, the budget makes significant investments to improve our defensive capabilities to deny a potential attack from succeeding. These include $336 million over the FYDP to support more capable network perimeter defenses, as well as $378 million over the FYDP to train and strengthen DOD's Cyber Protection Teams to respond to security breaches, grow our cyber training and testing ranges, and support tool development that will let our Cyber Mission Force quickly respond to cyberattacks against our networks regardless of where they are stationed around the world.

Reflecting our renewed commitment to deterring even the most advanced adversaries, the budget also invests in cyber deterrence capabilities, including building potential military response options. This effort is focused on our most active cyber aggressors, and is based around core principles of resiliency, denial, and response.

As part of DOD's second cyber mission—defending the nation—the budget invests in an advanced capability to disrupt cyberattacks of significant consequences. To support DOD's third cyber mission—providing offensive cyber options that if directed can augment our other military systems—the budget invests $347 million over the FYDP to help provide cyber tools and support infrastructure for the Cyber Mission Force and U.S. Cyber Command.

DOD has a unique level of resources and cyber expertise compared to the rest of the federal government, and following the recent data breaches of the Office of Personnel Management's information technology systems, DOD has undertaken responsibility for the development, maintenance, and cybersecurity of the replacement background investigation systems and their data infrastructure. To provide proper support and a dedicated funding stream for this effort, the President's Budget includes $95 million for DOD in fiscal year 2017. Also, on a separate but related note, the budget invests $454 million over the FYDP to ensure DOD will continue to have access to the trusted microelectronic components needed in our weapon systems. By developing alternative sources for advanced microchips and trusted designs, this funding will help ensure the long-term security of our systems and capabilities.

Meanwhile, to protect our platforms and ensure U.S. freedom of maneuver in contested environments, the budget also continues to support research, development, testing, evaluation, and procurement of advanced electronic warfare capabilities—totaling $3.7 billion in fiscal year 2017 and $20.5 billion over the FYDP. To enhance the electronic survivability and lethality of fighter and bomber aircraft like the F/A–18, F–15, and B–2, we're investing in both offensive and defensive airborne capabilities, including the Air Force's Defensive Management System modernization and Eagle Passive Active Warning Survivability System, and also the Navy's Integrated Defensive Electronic Countermeasures and Next Generation Jammer. We're upgrading the radar on our E–3 Sentry AWACS with enhanced electronic protection to make adversary jammers less effective. Investments in the Navy's Surface Electronic Warfare Improvement Program will help our ships protect themselves better. To help protect our ground forces, the budget invests in the Army's Common Infrared Countermeasures and Electronic Warfare Planning and Management Tool, as well as the Marine Corps' Intrepid Tiger pod.

While cyber and electronic warfare capabilities provide, for the most part, different techniques to achieve similar mission objectives, an integrated approach can yield additional benefits. This is reflected in our budget, including investments intended to ensure we can hold even the most challenging targets at risk.

Space Investments

As I mentioned earlier, this budget continues and builds upon important investments in last year's budget to help secure U.S. access to space and address space as an operational domain.

After adding over $5 billion in new investments in DOD's 2016 budget submission to make us better postured for contested military operations in space—including over $2 billion in space control efforts to address potential threats to U.S. space systems—this budget largely sustains those investments over the FYDP. While there is much more work ahead, we are on a good path in our efforts to complicate an adversary's ability to defeat our systems while also enhancing our ability to identify, attribute, and negate all threatening actions in space.

Meanwhile, the budget also supports strengthening our current space-based capabilities, and maturing our space command and control. It invests in more satellites for our Space-Based Infrared System to maintain the robust strategic missile warning capability we have today. It allocates $108 million over the FYDP to implement

the Joint Interagency Combined Space Operations Center (JICSpOC), which will better align joint operations in space across the U.S. Government.

DOD must have assured access to space through multiple reliable sources that can launch our critical national security satellites, which is why the budget invests $1.8 billion for space launch in fiscal year 2017 and $9.4 billion over the FYDP. Because we want to end the use of the foreign RD–180 engine as soon as possible, because we have a strong desire to preserve competition for space launch in order to ensure multiple launch service providers can sustain uninterrupted access to space, and to control costs, the budget includes funds for competitive public-private partnerships to help develop new launch services, which we believe is the most responsible way forward. Merely developing a new engine would not give us the assured access to space that we require. We plan to take advantage of the emerging commercial space launch marketplace using an innovative, more commercial approach—investing through competition in new launch services in return for priced options for future launches.

Nuclear Enterprise Investments

The budget also makes reforms and investments needed to continue providing a safe, secure, and effective nuclear deterrent. Compared to last year's budget submission, it adds $10 billion over the next five years, for a total of $19 billion in fiscal year 2017 and $108 billion over the FYDP for maintaining, and modernizing the nuclear force and associated strategic command, control, and communications systems. This reflects DOD's continuing commitment to the nuclear triad and its critical mission.

In addition to making an array of investments across the nuclear enterprise—from increased funding for manpower, equipment, vehicles, and maintenance, to technological efforts that improve the sustainability of our bomber fleet—the budget also fully funds the first stages of our key nuclear modernization effort, in particular the replacement of our *Ohio*-class ballistic missile submarines. The *Ohio* Replacement Program is allocated $1.9 billion in fiscal year 2017 and $13.2 billion over the FYDP, which in addition to research and development will allow the first year of construction on an incrementally-funded first ship to begin in fiscal year 2021.

We expect the total cost of nuclear modernization to be in the range of $350-$450 billion. Although this still presents an enormous affordability challenge for DOD, we believe it must be funded. Previous modernizations of America's strategic deterrent and nuclear security enterprise were accomplished by topline increases to avoid having to make drastic reductions to conventional forces, and it would be prudent to do so again. I hope DOD can work with Congress to minimize the risk to our national defense.

Building the All-Volunteer Force of the Future

While we have the finest fighting force in the world today, that excellence is not a birthright, and we can't take it for granted in the 21st century. We have to earn it again and again, starting with our most enduring advantage—our people.

That's what building the force of the future is all about: making sure that long into the future, my successors will be able to count on the same excellence in people that I do today. We have several overarching priorities to help us do that, like attracting a new generation of talented Americans, promoting diversity, and rewarding merit; carving tunnels through the walls between DOD, the private sector, our reserve force, and other agencies across the Government; and updating and modernizing our personnel management systems with technology and data analysis to help improve the choices and decisions we make related to our people.

I made this commitment to President Obama when he asked me to serve as Secretary of Defense, and so shortly after I was sworn in, I visited my old high school in Abington, Pennsylvania to outline my vision for the force of the future. I talked about how, in the face of generational, technological, and labor market changes, we in the Pentagon must try to make ourselves even better at attracting talent from new generations of Americans. In the months that followed, I went to places like Silicon Valley and St. Louis, and heard from companies like Facebook, Boeing, and LinkedIn about what they're doing to compete for talent in the 21st century. This past December, I announced that we're opening all combat positions to women, to expand our access to 100 percent of America's population for our All-Volunteer Force.

Throughout this process, we've always been mindful that the military is a profession of arms. It's not a business. We're responsible for defending this country—for providing the security that allows our friends and family members and fellow citizens to go to school, go to work, to live their lives, to dream their dreams, and to give the next generation a better future.

The key to doing this successfully is leveraging both tradition and change. While the military cannot and should not replicate all aspects of the private sector, we can and should borrow best practices, technologies, and personnel management techniques in commonsense ways that work for us, so that in future generations, we'll keep attracting people of the same high caliber we have today—people who will meet the same high standards of performance, leadership, ethics, honor, and trust we hold our force to today.

Last spring I asked DOD's Personnel and Readiness chief to lead a team in developing a package of bold proposals, which they did—building on the great work the military services were already doing, and also coming up with some new ideas. Subsequently, a senior leadership team led by Deputy Secretary of Defense Bob Work and Vice Chairman of the Joint Chiefs of Staff General Paul Selva has been working with the Service Vice Chiefs to closely analyze each proposal and make recommendations before I decide. While this process is still ongoing for some proposals, I've decided to announce my decisions on other proposals as I've made them, which I will now detail.

Greater Permeability and Talent Management

I outlined the first link we're building to the force of the future at George Washington University last November, announcing over a dozen new initiatives in several categories that are intended to make our future Defense Department better connected to 21st century talent.

First, we're creating what we call 'on-ramps' for people who aren't involved with DOD but want to try contributing to our mission. One way we're doing this is by having better managed internship programs that more effectively transition promising interns into employees. Another is our new Defense Digital Service, which brings in talent from America's vibrant, innovative technology community for a time to help solve some of our most complex problems. We're also going to bring in resident entrepreneurs, who will work with senior leaders on challenging projects for a year or two. We're going to hire a chief recruiting officer to bring in top executives for stints in civilian leadership roles, as we had in the past with people like Dave Packard, co-founder of HP, who also served as Deputy Secretary of Defense.

Second, we're creating short-term 'off-ramps' for those currently in DOD, so they can gain new skills, experiences, and perspectives from outside and then bring them back in to help keep us strong, creative, and forward-thinking. One way we're doing this is by expanding and broadening the Secretary of Defense Corporate Fellowship program, including by opening it up to qualified enlisted personnel. Another example is the Career Intermission Pilot Program, which lets people take a sabbatical from their Military Service for a few years while they're getting a degree, or learning a new skill, or starting a family. DOD plans to seek authorities to make this program permanent, and looks forward to working with Congress to do so—similar to how we were able to partner last year to update and modernize retirement benefits and ensure that the 80 percent of our force that doesn't serve 20 years will get the benefits they earned whenever they move on to whatever's next in life.

Third, we're going to use 21st century data and technology to improve and modernize our talent management systems. We're launching LinkedIn-style pilot programs to help give servicemembers and units more choice in matching up for future assignments. We're creating an Office of People Analytics to leverage big data to inform our personnel policies. We're finally implementing exit surveys, so we can have quantitative data on why people decide to leave. To help us keep bringing in the best people, we're looking at ways to evaluate recruit performance, improve outcomes, and better analyze trends that if left unchecked could indicate or lead to our military's insularity from the rest of society.

Family Support and Retention

Next, in January, I announced our so-called second link to the force of the future, a set of several initiatives with a singular focus: strengthening the support we provide our military families to improve their quality of life. They were developed keeping in mind DOD's recruiting, retention, and career and talent management needs, as well as our closely-linked readiness and warfighting demands, which must always guide us.

We know that our All-Volunteer Force is predominantly a married force—52 percent of our enlisted force is married, and 70 percent of our officer force is married. We also have another 84,000 military-to-military marriages, with 80 percent of them stationed within 100 miles of each other. While we recruit a servicemember, we retain a family. This means that what we do to strengthen quality of life for military families today, and what we do to demonstrate that we're a family-friendly force to those we want to recruit, is absolutely essential to our future strength. While we

often speak of commitments to family and country in the same breath, the stresses of Military Service on our families are heavy and well known; among the stresses military families face, having and raising children is near the top. We also know that at 10 years of service, when women are at their peak years for starting a family, women are retained at a rate 30 percent lower than men across the services. We know that a high level of work and family conflict is one of the primary reasons they report leaving service.

To build the force of the future, tackling these problems is imperative, especially when the generation coming of age today places a higher priority on work-life balance. These Americans will make up 75 percent of the American workforce by 2025. Nearly four-in-five of them will have a spouse or a partner also in the workforce—twice the rate of baby boomers. These Americans wait longer to have children, and when they do have children, they want to protect the dual earning power of their families to provide for their children accordingly.

That's why, for starters, we're providing a more competitive standard for maternity and paternity leave across our joint force—setting 12 weeks of fully paid maternity leave as the standard across the joint force, and working with Congress to seek authorities to increase paid paternity leave for new fathers from 10 to 14 days, which they can use in addition to annual leave. These changes put DOD in the top tier of institutions nationwide, and will have significant influence on decision making for our military family members. For both mothers and fathers alike, this establishes the right balance of offering a highly competitive leave policy while also maintaining the readiness of our total force. While I don't take lightly that 12 weeks of maternity leave represents a downshift from what the Navy pursued last summer, we will be at the forefront in terms of competition, especially as part of the comprehensive basket of family benefits we're providing across the joint force. This will be an increasingly important factor as current and future generations of parents have different views and expectations in parenting, and we must continue to be able to attract and retain the best talent among them.

Additionally, we're expanding the childcare we provide on our bases, because whether for single parents, for families in which both parents work outside the home, or for every mother or father in our military, childcare hours should be as responsive as possible to work demands. Based on feedback from pilot programs, and in the interest of responding to typical work hours at our installations, we will increase childcare access to 14 hours a day across the force. By providing our troops with childcare they can rely on –from before reveille to after taps—we provide one more reason for them to stay on board. We show them that supporting a family and serving our country are by no means incompatible goals.

We're also making relatively inexpensive improvements so that our workplaces are more accommodating to women when they return from maternity leave, with a focus on making it easier for them to continue breastfeeding if they choose. To make the transition between maternity leave and returning to work for military mothers smoother, to enhance our mission effectiveness, and to comply with standards that apply to nearly every organization outside the military, we're requiring the installation or modification of mothers' rooms throughout all facilities when there are more than 50 women regularly assigned.

Furthermore, we can also be more creative about making reasonable accommodations for members of our force who face difficult family geographic situations while at the same time preserving our force's effectiveness. Data indicates that allowing family members to trade the ability to remain at a station of choice in exchange for an additional Active Duty service obligation is one approach that could increase retention, while preserving readiness. DOD will be seeking legislative authority to this effect—when the needs of the force permit a servicemember to stay at their current location, we will seek to empower commanders to make reasonable accommodations, in exchange for an additional service obligation.

Finally, as a profession of arms, we ask our men and women to make incomparable sacrifices. We ask them, potentially, to place themselves at risk of sacrificing their ability to have children when they return home. To account for this more fully in the benefits we provide our troops, DOD will cover the cost of freezing sperm or eggs through a pilot program for active-duty servicemembers—a benefit that will help provide our men and women, especially those deployed in combat, with greater peace of mind. This investment will also provide greater flexibility for our troops who want to start a family, but find it difficult because of where they find themselves in their careers.

Each of these initiatives is significant in its own right. Taken together, they will strengthen our competitive position in the battle for top talent, in turn guaranteeing our competitive position against potential adversaries. The initiatives approved to

date total $867 million across the FYDP; we've included this in our budget because it's a worthy investment that will yield great returns.

More Still to Come

While these first two links are important, we will have more to announce on the force of the future in the coming months. For example, we're taking a serious look at some commonsense reforms in our officer promotion system, and I greatly appreciate Congressional leaders from both parties who have indicated their support for such reforms in principle. We're also looking at ways to improve how we manage our civilian personnel, working with the Government-wide Office of Personnel Management as well as federal employee unions. In both of these efforts, working with Congress will be essential to ensure that our force of the future is as strong as the force of today.

Reforming the DOD Enterprise

As I've said consistently from the moment I became Secretary of Defense, I cannot ask for more taxpayer dollars for defense without being candid about the fact that not every defense dollar is spent as wisely or responsibly as it could be, and also being determined to change that and make our department more accountable. That's why reforming the DOD enterprise is so important—from improving how we're organized so we can best respond to the challenges and opportunities of the future security environment, to continuing to improve our acquisition and enterprise-wide business and audit practices, to reducing excess infrastructure and overhead, to modernizing the military healthcare system.

Before I address the reforms in this budget submission, it's important to consider the recent history of defense reform—how DOD has been embarked on a reform path for much of the last seven years, and how we appreciate Congress's work with us over the last year on acquisition and modernized retirement reforms.

Despite what some may think, this administration hasn't been dragging its feet when it comes to defense reform—the reality has been quite the opposite. Beginning in 2009, we reduced the number of senior executives and general and flag officers, while working with Congress to trim management headquarters staffs by 20 percent, and move DOD toward auditability. We've done three iterations of the Better Buying Power initiative I established to continuously improve our acquisitions, with Better Buying Power 3.0 incorporated into this budget, and we're seeing compelling indications of positive improvements, including in areas like reduced cost growth and reduced cycle time. We've continually submitted much-needed reforms to strengthen the efficiency and capability of our force—many of which have been continually denied, either in whole or in part, at a cost for both taxpayers and our troops. This last part poses a real problem, because every dollar Congress denies us in reform is a dollar we can't invest in security we need to deter and defend against today's and tomorrow's threats.

Now is the time for action. DOD will work closely with Congress on any anticipated reform legislation, and we welcome an open and collaborative process. In the past, legislative reform has proven to be a double-edged sword—sometimes it leads to constructive change, which is good, but other times it just adds to bureaucracy and overhead, even if that was never the intent. I hope that with the focus on reform we've recently been seeing in this and the other defense committees in Congress, we can work together to do reform right. We should, because there's a lot that needs to be accomplished in many areas.

Continuously Improving Acquisition

DOD has been, and still is, absolutely committed to improving acquisition outcomes. After five years of implementing our Better Buying Power (BBP) initiatives for continuous process improvements in the defense acquisition system, we're seeing compelling indications of significant improvement in acquisition outcomes—for example, annual growth metrics for contracted costs on our major programs have dropped dramatically from a peak of 9.1 percent in 2011 to a 30-year low of 3.5 percent in 2015, and a much higher percentage of major programs are projecting cost reductions relative to initial baselines than in the past. While these developments are positive signs, we can and must do more to sustain and where possible accelerate our momentum to keep improving and deliver better military capability while protecting American taxpayers.

We need to continue reducing overhead and bureaucracy associated with the acquisition system, making it more agile and having a faster flow of commercial technology into our weapon systems. DOD is comfortable with the reforms in the fiscal year 2016 National Defense Authorization Act—which included several legislative reforms that DOD proposed last year—and we strongly support the increased role of the Service Chiefs in acquisition programs, particularly on cost and requirements

trade-offs. Going forward, it's important that we take the responsible approach to absorb these reforms and see their effects before making additional major changes.

DOD also appreciates Congress's interest in flexibility and agility, because the pace of threat changes and technology development are not compatible with our long cycles of budget submission, authorization, and appropriations. DOD will be looking for opportunities to work with Congress to improve the efficiency and effectiveness of our acquisition process. In particular, we would welcome greater flexibility in appropriations or reprogramming to initiate development of urgently needed capabilities. The flexibility to start a program as soon as a threat is identified would save critical time—as much as two years under current practices—and position both DOD and industry to more quickly initiate development, without a long-term commitment, outside the traditional budget cycle. This step would represent a 'free' two years of lead time to acquiring a new capability.

Leaner Business Practices and Reducing Excess Overhead and Infrastructure

The budget submission reflects several important efforts to spend taxpayer dollars more efficiently, generating savings that would be much better invested in other areas like the fight against ISIL or deterring Russian aggression.

Part of this means making more reductions to overhead, and also adopting some commonsense business practices that are long overdue—which in total we expect to help save nearly $8 billion over the next five years. By better managing the 20 percent management headquarters reductions I mentioned earlier, including delayering and flattening management organizational structures, and also by increasing the reduction to 25 percent, reviewing service contracts, and making business operations and IT more efficient, we expect to save close to $5.9 billion over the FYDP. We're modernizing how we manage our commissaries and military exchanges, to optimize their business practices and respond to the changing needs of their customers. Unlike commissary and military exchange reforms proposed in previous budgets, this new approach protects the benefits they provide our people while still generating expected savings of about $2 billion over the FYDP.

We're also making real progress on reforming DOD's myriad systems and business processes to meet our commitment to be audit ready by the beginning of fiscal year 2018. The three military departments began audits of their budgets for the first time last year, and DOD financial audits currently cover over 75 percent of our total General Fund budgetary resources and just over 90 percent of the current year dollars.

In addition, we need to stop spending so much money to hold onto bases we don't need, and implement a domestic round of Base Realignment and Closure (BRAC) in 2019 as we're requesting. While it's helpful that the fiscal year 2016 National Defense Authorization Act allowed a study of DOD's excess infrastructure, the bottom line is that we have more bases in more places than we need, with preliminary analysis indicating that we have over 20 percent excess infrastructure. To ignore this fact while criticizing DOD for wasteful spending is not only a sin of omission, but also a disservice to America's taxpayers. Last year's Congressional denial forced the BRAC round to slip from 2017 to 2019, further prolonging our ability to harvest savings we greatly need. By then it will have been 14 years since DOD was allowed to right-size its domestic infrastructure, which any business leader or citizen would think is ridiculous—and they'd be right. Now is the time to fix it.

Reexamining Goldwater-Nichols and Defense Institutional Reform

I appreciate that Congress shares my desire to make institutional reform a priority. The Goldwater-Nichols Department of Defense Reorganization Act of 1986 was important and had deeply positive results, but after 30 years, it needs updates. To help formulate DOD's recommendations to Congress on reviewing Goldwater-Nichols reforms, I asked our Deputy Chief Management Officer last fall to lead a comprehensive review of organizational issues in DOD—spanning the Office of the Secretary of Defense (OSD), the Joint Staff, the combatant commands, and the military departments—and identify any potential redundancies, inefficiencies, or other areas of improvement.

This review is currently ongoing, and preliminary internal findings are expected by the end of March to help shape our forthcoming recommendations to Congress. In addition, and without prejudging any outcomes, I can say our review is examining areas where the pendulum may have swung too far, as in not involving the Service Chiefs enough in acquisition decision-making and accountability; or where subsequent world events suggest nudging the pendulum further, as in taking more steps to strengthen the capability of the Chairman of the Joint Chiefs of Staff, the Joint Chiefs of Staff, and the Joint Staff to support management, planning, and execution across the combatant commands, including for prioritizing military activities

and resources across combatant command boundaries, and particularly focused on trans-regional, multi-domain, and multi-functional threats, as well as threats within overlapping time frames; ensuring the Chairman's ability to provide their best military advice to me and the President, outside the chain of command as conceived of in the law; eliminating unnecessary overlap between OSD and the Joint Staff and between the service secretariats and staffs; better aligning combatant command staffs to their mission; streamlining acquisition requirements and decision-making processes to remove unneeded decision-making layers; having more flexibility in the laws and policies that govern joint duty qualifications; and better aligning the Joint Staff and the combatant commands to produce operational advice and respond to transregional threats.

I look forward to the full results of our review, and I hope you will too. While DOD's current organization produces sound military advice and operational decisions, it often does so in a needlessly costly and time-consuming manner—leaving plenty of room for organizational improvements that can make us more agile and efficient. While much is within our existing authority to do, we will work with Congressional committees to frame and seek any needed reforms in statute. I look forward to working with you.

Modernizing and Simplifying the Military Healthcare System

DOD greatly appreciates that Congressional leaders have said 2016 will be the year to reform our military healthcare system, TRICARE, after having passed retirement modernization reform in 2015. As you know, DOD has proposed various ways to reform TRICARE for several years, so we look forward to working very closely with Congress in the year ahead. The reforms reflected in the budget give beneficiaries more simplicity and choice in how they manage their healthcare, while also incentivizing the much more affordable use of military treatment facilities. This will not only save money, but also maximize the workload and readiness of our military's medical force, giving our doctors, nurses, medics, and corpsmen the experience they need to be effective at their mission. Together this should generate about $548 million in fiscal year 2017 and almost $7 billion over the FYDP that can be better spent in other ways without sacrificing the care of our people. It's time to get this done.

Making Sure Retirement Reform Works

DOD greatly appreciates being able to work closely with Congress last year in reforming the military's retirement system. In this year's budget submission, we are including a few modifications to military retirement reform to help make sure those reforms work in the best possible way for the future strength and success of our military.

First, continuation pay should not be an entitlement at 12 years of service, but rather a vitally important force shaping tool. DOD should have the flexibility to determine if and when to offer this benefit so we can better retain the talent we need the most at any given time.

Second, the blended retirement plan that Congress passed last year needs some modifications to avoid having adverse effects on retention—in particular, slightly raising the maximum matching contribution from 4 percent to 5 percent. To improve retention, we also propose increasing the number of years a servicemember has to serve before matching contributions begin—so instead of beginning them at the start of their third year of service, it would be at the start of their fifth year of service, after their first reenlistment. DOD looks forward to working with Congress to make these proposals a reality.

The Right Force Structure for Current and Future Operations

The budget also reflects critical decisions on force structure reforms, all of which are vital to making sure our troops have the capabilities they need for both present and future missions. While Congress has too often rejected such reforms out of hand, our decisions this year show that when world events and operational demands require the Defense Department to change its plans, it does so. In turn, Congress must do the same, and recognize that with a set budget and the need to invest in advanced capabilities to strengthen high-end deterrence, it's time to seriously consider these reforms and stop tying our hands from implementing them.

I mentioned earlier that we're pushing off the A–10's final retirement until 2022 so we can keep more aircraft that can drop smart bombs on ISIL; in addition to changing when A–10s will be retired, we're also changing how it will happen. As 2022 approaches, A–10s will be replaced by F–35s only on a squadron-by-squadron basis as they come online, ensuring that all units have sufficient backfill and that we retain enough aircraft needed to fight today's conflicts.

While some members of Congress may think the Navy's phased approach for modernizing its guided missile cruisers is just a ploy to quickly retire them, that is incorrect—in fact, retiring them now or anytime soon would be a serious mistake. Our cruisers are the best ships we have for controlling the air defenses of a carrier strike group, and given the anti-ship missiles being developed by other nations, we not only can't afford to go without them; we also need them to be as modern and capable as possible, and for them to stay in service as long as they can. The Navy's plan is still smarter and more affordable than the approach laid out by Congress, saving us $3 billion over the FYDP that we're putting to good use elsewhere in the budget. To make clear that this is not a ploy to quickly retire our cruisers, we will be submitting proposed legislative language that Congress can pass to hold the department to its word.

Additionally, the Army is continuing to implement its Aviation Restructure Initiative in accordance with the fiscal year 2015 National Defense Authorization Act as the Chief of Staff of the Army reviews the recent findings of the National Commission on the Future of the Army. While we will revisit the Army's aviation transfer plan when we receive the Chief of Staff of the Army's report, the Commission's proposal to keep four Apache battalions in the Army National Guard could cost over $2.4 billion if the Army fully equips all 20 active battalions and keeps all aircraft currently dedicated to its equipment set in South Korea. By improving the readiness of the Army's Apache attack helicopters, and better leveraging the diverse capabilities Black Hawk helicopters bring to the table for National Guard missions—both here at home, and around the world when called upon as an operational reserve—the Army's planned Aviation Restructure Initiative is in the best interests of both the Army as well as the taxpayers who support it.

The Opportunity of Reform

Regardless of how any of our proposed reforms might be initially received, DOD needs Congress to work together with us on a path forward for all of them, because there's a real opportunity in front of us.

With last fall's budget deal, you showed that cooperation and prudent compromise for the good of our future security and strength was actually possible. Our reform submissions on things like the A–10, commissaries, and TRICARE reflect the fact we've heard Congress's concerns about past submissions, and made adjustments accordingly.

If we don't lead the way ahead together, both troops and taxpayers alike will be forced to deal with the consequences. Let's work together on their behalf.

VI. REQUESTS OF THIS COMMITTEE: THE IMPERATIVE OF WORKING TOGETHER

Before concluding, I want to reemphasize the big picture, because this budget marks a major inflection point for the Department of Defense, and we need your support for it.

For a long time, DOD tended to focus and plan and prepare for whatever big war people thought was coming over the horizon, at one point becoming so bad that after a while, it started to come at the expense of current conflicts—long-term at the expense of the here-and-now. Thankfully we were able to realize that over the last decade, correct it, and with help from Congress turn our attention to the fights we were in.

The difference today is that, while such a singular focus made sense when we were facing off against the Soviets or sending hundreds of thousands of troops to Iraq and Afghanistan, it won't work for the world we live in. Now we have to think and do a lot of different things about a lot of different challenges—not just ISIL and other terrorist groups, but also competitors like Russia and China, and threats like North Korea and Iran. We don't have the luxury of just one opponent, or the choice between current fights and future fights—we have to do both, and we have to have a budget that supports both. That means funding a force with the right size, readiness, and capabilities to prevail in today's conflicts while simultaneously building a force that can prevail in the future—recognizing that future force won't exist unless we take actions today. That's what this budget submission was designed to do, and we need your help to do it.

I thank this committee again for supporting the Bipartisan Budget Act that set the size of our budget; our submission focuses on the budget's shape, and we hope you approve it. I know some may be looking at the difference between what we proposed last year and what we got in the budget deal, but I want to reiterate that we've mitigated that difference, and that this budget meets our needs. The budget deal was a good deal—it gave us stability, and for that we remain grateful. Doing something to jeopardize that stability would concern me deeply. The greatest risk we face in DOD is losing that stability this year, and having uncertainty and se-

quester in future years. That's why going forward, the biggest concern to us strategically in the Congress is averting the return of sequestration next year so we can sustain all these critical investments over time.

By working together, I am confident we can succeed, because in many ways we already have. If we think back to those defense investments and decisions that changed the course of our nation's and our military's history for the better—and not just in technologies like GPS, the Internet, and satellite communications, but also in other areas, like jointness and the All-Volunteer Force—they were all able to benefit our security and our society because they garnered support across the aisle, across branches of Government, and across multiple administrations.

That same support for what's in this budget is essential today to address the security challenges we face and seize the opportunities within our grasp. We need your support in the decisions that our senior military leaders and I are advocating for. We need you to work with us, and not tie our hands, when it comes to pursuing smart and critical reforms. We need you to provide adequate, stable, predictable resources, as only you can, by coming together as you have before—including, in the coming years, to avert the return of sequestration once again. As long as you do, I know our national security and national strength will be on the right path, and America's military will continue to defend our country and help make a better world for generations to come.

Thank you.

Chairman MCCAIN. Thank you.

General Dunford.

STATEMENT OF GENERAL JOSEPH F. DUNFORD, JR., USMC, CHAIRMAN OF THE JOINT CHIEFS OF STAFF

General DUNFORD. Chairman McCain, Ranking Member Reed, distinguished members of the committee, thank you for the opportunity to join Secretary Carter and Secretary McCord in appearing before you.

I'm honored to represent the extraordinary men and women of the joint force. Our soldiers, sailors, airmen, and marines, civil servants, remain our single most important competitive advantage. Thanks to your support, the United States military is the most capable fighting force in the world.

With your continued support, the joint force will continue to adapt, fight, and win in current operations while simultaneously innovating and investing to meet future challenges. I don't believe we ever should send Americans into a fair fight. Rather, we should maintain a joint force that has the capability and credibility to assure our allies and partners, deter aggression, and overmatch any potential adversary. This requires us to continually improve our joint warfighting capabilities, restore full-spectrum readiness, and develop the leaders who will serve as the foundation for the future.

The United States is now confronted with challenges from both traditional state actors and nonstate actors. The Department has identified five strategic challenges, and Secretary Carter has already addressed those. Russia, China, Iran, and North Korea continue to invest in military capabilities that reduce our competitive advantage. They are also advancing their interests through competition with a military dimension that falls short of traditional armed conflict and the threshold for traditional military response. Examples include Russian actions in Ukraine, Chinese activities in the South China Sea, and Iran's malign activities across the Middle East. At the same time, nonstate actors, such as ISIL and al Qaeda, pose a threat to the Homeland, the American people, our partners, and our allies. Given the opportunity, such extremist groups would fundamentally change our way of life.

As we contend with the Department's five strategic challenges, we recognize that successful execution of our defense strategy requires that we maintain credible nuclear and conventional capabilities. Our strategic nuclear deterrent remains effective, but it's aging, and it requires modernization. Therefore, we're prioritizing investments needed for a safe, secure, and effective nuclear deterrent. We're also making investments to maintain a competitive advantage in our conventional capabilities, and we must further develop capabilities in the vital and increasingly contested domains of cyber and space.

As the joint force acts to mitigate and respond to challenges, we do so in the context of a fiscal environment that has hampered our ability to plan and allocate resources most effectively. Despite partial relief by Congress from sequester-level funding, the Department has absorbed 800 billion in cuts and faces an additional 100 billion of sequestration-induced risk through fiscal year 2021. Absorbing significant cuts over the past 5 years has resulted in our underinvesting in critical capabilities. Unless we reverse sequestration, we'll be unable to execute the current defense strategy, and specifically unable to address the challenges that Secretary Carter outlined.

The fiscal year 2017 budget begins to address the most critical investments required to maintain our competitive advantage. To the extent possible within the resources provided by the 2015 Bipartisan Budget Act, it addresses the Department's five challenges. It does so by balancing three major areas: investment in high-end capabilities, the capability and capacity to meet current operational demands, and the need to rebuild readiness after an extended period of war. In the years ahead, we'll need adequate funding levels and predictability to fully recover from over a decade at war and delayed modernization. A bow wave of procurement requirements in the future include the *Ohio*-class submarine replacement, continued cyber and space investments, and the long-range strike bomber. It will also be several years before we fully restore full-spectrum readiness across the services and replenish our stocks of critical precision munitions.

In summary, I'm satisfied the fiscal year 2017 budget puts us on the right trajectory, but it will take your continued support to ensure the joint force has the depth, flexibility, readiness, and responsiveness that ensures our men and women never face a fair fight.

Once again, thank you for the opportunity to appear before you this morning. I look forward to your questions.

[The prepared statement of General Dunford follows:]

PREPARED STATEMENT BY GENERAL JOSEPH DUNFORD JR.

I. INTRODUCTION

Chairman McCain, Ranking Member Reed, members of this Committee, this posture statement addresses the state of our Nation 's armed forces, the current security environment, and the opportunities and challenges that lie ahead.

I am humbled and honored to represent the incredible men and women of our Joint Force. During my first five months as Chairman, I have engaged soldiers, sailors, airmen, marines, and coast guardsmen at every level. I am confident, and you should rest assured, that the United States' military is the most capable fighting force in the world. The character, ingenuity, competence, and self-sacrifice of the servicemembers in our All-Volunteer Force remain our single greatest warfighting

competitive advantage. I would like to express my gratitude to this distinguished body for its support in ensuring that we maintain the best equipped, trained, and led force in the world.

With the continued support of Congress, the Joint Force will continue to adapt, fight, and win in current operations while simultaneously innovating and investing to decisively win future conflicts. We must never send young Americans into a fair fight. Rather, we must maintain a Joint Force that assures our allies and partners, deters potential adversaries, and has unquestioned overmatch when employed. This requires us to focus on improving joint warfighting capabilities, restoring joint readiness, and developing leaders who will serve as the foundation of the future Joint Force.

II. STRATEGIC ENVIRONMENT

The institutions and structures that have underpinned international order for the last several decades remain largely intact. However, the United States is now confronted with simultaneous challenges from both traditional state actors and non-state actors. The Department has identified five strategic challenges—Russia, China, North Korea, Iran, and Violent Extremist Organizations. Russia, China, Iran, and North Korea present two distinct challenges to our national security. First, they continue to invest in military capabilities that reduce our competitive advantage. Second, these actors are advancing their interests through competition with a military dimension that falls short of traditional armed conflict and the threshold for a traditional military response. This is exemplified by Russian actions in Ukraine, Chinese activities in the South China Sea, and malicious cyber activities. At the same time, non-state actors such as ISIL, al Qaida, and affiliated organizations are destabilizing parts of the international community, attacking our global interests and threatening the Homeland. We must address these challenges to protect the stability of the international order and preserve U.S. influence.

Successful execution of our defense strategy requires that we maintain credible nuclear and conventional capabilities. Our strategic nuclear deterrence force remains safe, secure, and effective but is aging and requires modernization. We are prioritizing renewed long-term investments in early warning sensors; nuclear command, control, and communications; and our triad forces. Similarly, we are making investments to maintain a competitive advantage in our conventional capabilities. However, potential vulnerabilities to our national security extend beyond just conventional or nuclear threats. To preserve the security of the Homeland, we must prevent the proliferation and use of WMD and associated technologies. We must also further develop our capabilities in the vital and increasingly contested domains of Cyber and Space.

Future conflict with an adversary or combination of adversaries i s taking on an increasingly transregional, multi-domain, and multi-functional nature. This is a marked shift from how past conflicts were fought and will put significant stress on the Department's geographically-based organizational structure and associated command and control (C2) architecture. Future conflict will spread quickly across multiple combatant command geographic boundaries, functions, and domains. We must anticipate the need to respond to simultaneous challenges in the ground, air, space, cyberspace, and maritime domains. It is this type of operating environment that informed our investments in PB17 and our efforts to more effectively integrate joint capabilities.

As the Joint Force acts to mitigate threats to U.S. interests against the backdrop of the Department's five strategic challenges, we do so in the context of a fiscal environment that hampers our ability to plan and allocate resources most effectively. Despite partial relief by Congress from sequester-level funding since fiscal year 2012, the Department is absorbing approximately $800B in cuts compared to the ten-year projection in the fiscal year 2012 Budget, and faces an additional $100B of sequestration-induced risk through fiscal year 2021. Absorbing cuts of this magnitude has resulted in underinvestment in critical capabilities. PB17 takes necessary steps toward s balancing the needs of meeting current and future operational requirements, investing in capability development, and keeping faith with servicemembers and their families. We must continue to work together to develop future budgets which provide the investment levels and flexibility needed to address our national security interests.

III. CURRENT ASSESSMENT OF THE JOINT FORCE

As directed in the 2014 Quadrennial Defense Review, the U.S. Armed Forces must be able to simultaneously defend the Homeland while waging a global counterterrorism campaign, deter potential adversaries, and assure allies. If deterrence fails,

the U.S. military must be capable of defeating one adversary while denying a second adversary's objectives in a different region. Due to shortfalls in capacity and critical capabilities such as ISR and long-range strike, as well as increased timelines for force movements, the Joint Force will be challenged to respond to a major contingency while simultaneously defending the Homeland and continuing the counter-VEO mission. Capability and capacity shortfalls would be particularly acute if the force were called to respond to a second contingency on an overlapping timeline. Moreover, some allies and partners are less capable or willing to fill these gaps than in the past.

Today, combatant command assigned missions can be accomplished, but all combatant commanders cite resource limitations and capability shortfalls that may increase casualties, lengthen response timelines, and extend the duration of a future conflict. There are also shortfalls in our ability to conduct day to day shaping activities that serve to mitigate the risk of conflict and properly posture the force in event of conflict. These shortfalls include the number of ready response units in the Services' non-deployed force, theater ISR assets, command and control, intelligence, cyber operations, precision munitions, missile defense, and logistics.

Recovery of full-spectrum Joint Force readiness remains fragile. The adverse impact of budget reductions over the past several years combined with a persistently robust global demand for forces and capabilities continues to impede our ability to rebuild readiness after more than a decade of contingency operations. Regaining full-spectrum capabilities and appropriate levels of material readiness will take time, resources, and a healthy industrial base.

The Joint Force has maintained competitive advantage in technology for several decades. However, this advantage has been eroded by our adversaries' efforts to improve their warfighting capabilities and avoid or counter U.S. military technological strengths. Moreover, the rapid pace of technological advances combined with the wide proliferation of new technologies has allowed our adversaries to more easily acquire advanced capabilities. This is highlighted by the increasing ease of access to cyber and space technologies and expertise in the commercial and private sectors. Adversaries are able to diminish the long-term advantage of key U.S. capabilities by leveraging access to commercial technology, targeting our defense industrial base with cyber espionage and sabotage, and developing capabilities within tighter development cycles than our bureaucratic acquisition cycle allows.

IV. CAPABILITY TRENDS FOR KEY CHALLENGES

The Department's five strategic challenges were the primary driver behind our risk assessment. For a classified analysis of these challenges and our response options, please review my Chairman's Risk Assessment and the Secretary's Risk Mitigation Plan.

Russia—Russia's actions threaten NATO cohesion and undermine the international order. Russia's military modernization and doctrine development aim to neutralize traditional U.S. competitive advantages and limit strategic options.

The Russian military presents the greatest challenge to U .S. interests. Russia is also the only actor aside from the United States that can project strategic power simultaneously in multiple regions. To assure our national security and reinforce international order, the United States and our NATO allies must improve our military capability, capacity, and responsiveness to deter a resurgent Russia. While Russia has not signaled the intent to directly attack the United States or our NATO allies, Russia's National Security Strategy identifies the United States and the expansion of NATO as threatening their national security. Moscow's strategic nuclear capabilities represent a potential existential threat to the United States, and their non-strategic nuclear capabilities threaten our allies and U.S. forward-based forces in Europe and Asia. Russia has also shown a willingness to use competition short of traditional military conflict—such as in Ukraine—to pursue its strategic goals.

In recent years, Russia has undertaken a long-term strategic armaments program designed to develop military capabilities and systems that erode our competitive advantage across the spectrum of conflict. Russia has modernized its strategic nuclear forces, enhanced their force projection and anti-access/area denial (A2/AD) capabilities, and significantly increased its proficiency in executing hybrid operations. Operations in Ukraine and Syria serve to demonstrate these new capabilities and increase their proficiency.

In the Cyber domain, Russia is a peer competitor of the United States and has demonstrated a willingness to exploit cyber to achieve its objectives. We suspect Russia has conducted a range of cyber operations against Government, academic, and private networks. Russian cyber capability could potentially cause considerable damage to critical network equipment and national infrastructure throughout the

United States and Europe. In the near to medium term, Russia is also modernizing its counter-space capabilities to defeat a wide range of U .S. spacebased capabilities while seeking to secure Russian freedom of action.

In summary, Russia is improving its high-end warfighting capabilities and closing the gap on our competitive military advantages. Since 2008, Russia has demonstrated increasingly sophisticated military capabilities and doctrine. In these operations, Russia has broadly operated across the spectrum of conflict to include information operations and cyber warfare. Russia is the only actor that can project strategic power in multiple regions to threaten U.S. national interests and coerce U .S. and allied decision-makers.

PB17 addresses Russia's aggressive policies and military modernization through investment in a number of high-end capabilities. The budget request also quadruples funding for the European Reassurance Initiative (ERI) to $3.4B in fiscal year 2017 to reassure our NATO allies and deter Russian aggression.

China—China's rapid military modernization and expanding presence in Asia and beyond increase the probability for misunderstanding and miscalculation.

China is engaged in a sustained military modernization effort that is reducing our competitive military advantage against it. This effort is coupled with an ambitious foreign military-tomilitary engagement program that aims to acquire advanced tactics, training, and procedures from other developed militaries. China is also seeking to improve the joint capability of its armed forces to project power-enhancing its ability to fight and win a high-intensity regional conflict. Critical to Chinese efforts is the development of capabilities that specifically counter U.S. operational strength.

Over the course of the last year, China's military operations have expanded in size, complexity, duration, and geographic location. Additionally, China continues to make large-scale investments in advanced A2/AD capabilities, including short-, medium-, and intermediate-range ballistic and cruise missiles employing countermeasures to deny U.S. missile defense systems. China is also investing in land attack and anti-ship cru i se missiles, counter-space weapons, cyber, improved capabilities in nuclear deterrence and long-range conventional strike, advanced fighter aircraft, integrated air defenses, undersea warfare, and command and control capabilities. China's nuclear-capable missile forces pose a military risk to the U .S. Homeland. China's landbased missile forces continue to expand, increasing the number of nuclear warheads capable of striking the United States as well as bases in the Pacific theater.

The aggregate of China's expanding, well-resourced, and well-trained cyberspace forces represent a threat to the United States. China's use of computer network attacks in a conflict with the United States or our allies and partners could seriously limit access to cyberspace and further degrade deployment and sustainment of forces. In the Space domain, China continues to enhance its ability to support terrestrial operations. By pursuing a diverse and capable range of offensive space control and counter-space capabilities, China is also working to diminish U.S. space dominance.

In summary, China's rapid military modernization is quickly closing the gap with U.S. military capabilities and is eroding the Joint Force's competitive military advantages. China's military forces can constrain U.S. military operations in the Western Pacific and hold key U.S. infrastructure and facilities at risk. Its strategic capabilities are improving and present an increasing risk to the U.S. Homeland and our allies.

PB17 is supportive of our commitment to the Asia-Pacific rebalance. It invests in high-end capabilities, particularly those needed to maintain undersea dominance and to counter A2/AD capabilities. The budget request also funds the buildup of Guam as a strategic hub, initiation of P–8 maritime patrol aircraft rotations in Singapore, implementation of rotational initiatives in Northern Australia, and positioning F–35 fighters in Japan in 2017.

North Korea—North Korea's nuclear weapons and ballistic missile programs, increasing asymmetric capabilities, and willingness to use malicious cyber tools threaten the security of the Homeland. These capabilities, alongside conventional forces, also threaten our allies in the region.

North Korea has an opaque and confrontational national leadership, the fourth largest army in the world, and increasing nuclear and ballistic missile capabilities. The regime represents an immediate threat to U.S. allies in the region and an increasing threat to U.S. territories and the Homeland.

The United States maintains a competitive military advantage against the relatively low technology North Korean military. However, in the event of a conflict on the peninsula, North Korea may be able to seize the initiative and rapidly escalate hostilities utilizing special operations forces, mass, and long-range fires. Risk of large numbers of civilian and military casualties remains high.

North Korea continues to develop its offensive and intelligence-collection capabilities aimed at exploiting U.S. and allies' cyber domains. North Korea's current cyber capabilities remain modest and pose the greatest threat to poorly defended networks. We expect North Korea to continue investing in more capable cyber tools to develop asymmetric options which can be effective against more sophisticated networks.

In summary, North Korea's ballistic missile and nuclear developments, willingness to conduct malicious cyber activities, and potential to seize the initiative in a conflict on the peninsula pose risks to the security of the United States and our allies.

As previously noted, PB17 is supportive of our commitment to the Asia-Pacific rebalance and accounts for the challenges posed by North Korea. The budget provides additional funds for conventional munitions and continues investment in missile defense.

Iran—Continued expansion of Iranian malign influence in the Middle East threatens the stability and security of key regional partners. Iran is increasingly capable of restricting U.S. military freedom of action in the region.

Iran is improving the quality and quantity of select conventional military capabilities. Specifically, Iran continues to leverage its position on the Strait of Hormuz to pursue an area denial strategy with increasing capability and capacity of ISR, antiship cruise missiles, fast attack craft, fast inshore attack craft, submarines, and mines. Iran augments its maritime patrol capacity with unmanned aerial reconnaissance systems and is developing an armed unmanned aerial system capability. Improvements in the quality, quantity, and lethality of Iran's military capabilities threaten both U.S. interests and freedom of action within the region.

To date, Iran has not demonstrated the capability to strike the continental United States with a ballistic missile. However, Iran has made significant strides in its missile development programs since 2009, when it successfully launched its first satellite. In 2010, Iran unveiled a new space launch vehicle that—if configured as a ballistic missile—would be capable of reaching the United States. In the Cyber domain, Iran's capabilities present a limited but increasing threat to the United States. Iran has demonstrated some degree of success in targeting vulnerable critical infrastructure networks.

In summary, Iran and its malign activities present the greatest threats to U.S. interests in the Middle East and North Africa. Tehran has demonstrated the ability to project influence across the region and presents an asymmetric threat to the United States and its regional partners. Iran's conventional military modernization is not likely to compete with U.S. capability, but its ballistic missile force can hold key regional U.S. infrastructure at risk.

PB17 addresses Iran's malign activities though investments in capabilities that improve our posture, enhance regional partnerships, and provide options in the event of a contingency. Specifically, the budget funds additional capabilities for power projection, sea control, and regional missile defense.

Violent Extremist Organizations—VEOs threaten the stability and security of key regional partners and many of our closest allies. Their ability to inspire attacks threatens the security of U.S. citizens and interests at home and abroad.

VEOs are distinct from the other four threats, representing both an immediate and long-term risk. Counter-VEO operations will require continued focus and resources even if the Joint Force is called on to respond to a contingency involving Russia, China, Iran, or North Korea. While VEOs do not pose an existential threat to the United States, they continue to increase their abilities to inflict harm upon our vital interests. Several of our partner nations -from South Asia to the Middle East and Africa—are battling VEOs that have established territorial control and are directly challenging existing Governments. U.S. values and the rules-based international order are also threatened by VEOs. Additionally, VEO-driven conflicts have generated mass migration and significant flows of foreign fighters to and from conflict zones, which poses risk to the United States and our allies and partners in the Middle East, North Africa, and Europe.

The PB17 submission funds our ongoing counter-VEO operations. PB17 OCO funding will help establish counterterrorism platforms in South Asia (Afghanistan), the Middle East (Levant), East Africa (Djibouti), and an enhanced presence in North/West Africa. These platforms will provide sustainable, flexible, and scalable nodes from which to conduct planning and synchronize operations within the U.S. Government and with allies and partners.

V. CROSSCUTTING SOURCES OF MILITARY RISK

The Joint Force faces a variety of crosscutting sources of military risk: gaps and shortfall s that impact our ability to accomplish our missions and objectives, both in today's operations and in tomorrow's potential conflicts.

Multiple, overlapping contingencies

In accordance with the 2014 Quadrennial Defense Review, the U.S. Armed Forces must be capable of simultaneously defending the Homeland while waging a global counterterrorism campaign, deterring potential aggressors, and assuring allies. If deterrence fails, U.S. Forces must also be capable of defeating an adversary and denying the objectives of—or imposing unacceptable costs on—a second aggressor in another region. The Joint Force will be stressed to execute a major contingency operation on desired plan timelines with available assets, while simultaneously defending the Homeland and continuing the counterterror fight against VEOs. Response to aggression by another adversary at the same time would be further limited due to capacity shortfalls, force movement timelines, and the dedication of enabling forces and capabilities elsewhere.

Intelligence, Surveillance, and Reconnaissance

A lack of theater ISR surge capacity diminishes the Joint Force's responsiveness and flexibility to support emergent crisis or contingency. Current theater ISR assets and associated analytic support capacity remains short of combatant commanders' increasing requirements.

High Demand—Low Density Capabilities

HD/LD capability and capacity shortfalls affect our ability to achieve assigned missions. We continue to operate systems in several critical mission areas and deploy personnel with specific specialty skills at high rates, resulting in minimal to no surge capacity in those areas. Similar to ISR, this negatively impacts the Joint Force's responsiveness and flexibility to support emergent requirements. HD/LD capability shortfalls that pose significant military risk include: missile defense systems, naval expeditionary forces, personnel recovery assets, airborne command and control systems, explosive ordnance disposal assets, air superiority and global precision strike units, and cyber mission forces.

Munitions

Key precision guided munitions shortfalls are exacerbated by ongoing operations and may impact potential contingency response. Additionally, our current global inventories are insufficient for theater missile defense (TMD), standoff, and air-to-air munitions needs.

Logistics

We are seeing increasing risk associated with the Joint Logistics Enterprise's ready and available capacity. Critical logistics enablers lack capacity and responsiveness: 79 percent of such units report reduced readiness levels which affects mission accomplishment flexibility and increases vulnerability. A majority of these elements are motor transportation, engineer, and cargo handling units necessary to support the deployment and sustainment of combat elements. Of these units, the vast majority reside in the Reserve Component (RC). As such, any contingency that requires responses on a timeline faster than that designated for RC mobilization will face risk from the lengthened timelines for combat forces and their sustainers to arrive in theater.

VI. PB17 SUMMARY

PB17 addresses the Department's five strategic challenges—a resurgent Russia, a rising China, North Korea, Iran, and VEOs—by balancing the demands of readiness, capacity, and capability within the resources provided by the 2015 Bipartisan Budget Agreement. The total fiscal year 2017 topline, which is approximately $17 billion below what we planned in PB16, required us to defer modernization in favor of near-term readiness and force structure. These reductions and delays in modernization will exacerbate the procurement bow wave we confront at the end of the Future Year Defense Program (FYDP) and compound risk to the overall balance of the Joint Force.

PB17 also contains fiscal risk. The budget assumes higher toplines in fiscal year 2018–2021, continued favorable economic factors, and future efficiencies. We also continue to depend on OCO funding for ongoing contingency operations and Joint Force readiness recovery.

Key Capability Investments

Given a constrained topline, PB17 prioritizes investments to modernize the future Joint Force while balancing capacity and readiness.

TACAIR

The Air Force accepts risk in the "air" domain in order to invest in nuclear enterprise, space, and cyber priorities. Cuts in fifth generation fighter aircraft procurement create risk in the mid-2020s, which will be mitigated by 4th generation fighter aircraft enhancements. PB17 funds 54 Air Force combat-coded fighter squadrons in the base budget and one squadron supporting the European Reassurance Initiative in the OCO budget (a total of six more squadrons than the PB16 plan for fiscal year 2017). The Department of the Navy will procure additional F–35C (+10), F–35B (+3), and F/A–18E/F (+14) over PB16 levels. The Department of the Navy will also complete its planned buy of 109 P–8A by fiscal year 2019.

Cyber

State actors will remain the most capable threats to computer network operations. Non-state actors—VEOs, ideological hackers, and cybercriminals-have demonstrated high-level network intrusion skills against the U.S. Government and private entities and will continue to develop sophisticated tools to achieve their objectives. Developing and growing the Cyber mission force will require a long-term concerted effort. PB17 invests in both quantity and quality of cyber capabilities. It funds $6.78 in fiscal year 2017 (a 13 percent increase) and approximately $34 billion across the FYDP in cyber posture and capabilities—including investments in strategic cyber deterrence, cyber security, and offensive cyber.

Space Acquisition

PB17 makes significant investment in space posture and capability. We are funding $7 billion in fiscal year 2017 and approximately $38 billion across the FYDP, including space situational awareness, space launch capabilities, and command & control of critical space architecture. Other budget items will harden follow-on communications and warning satellites, accelerate GPS replacement to assure targeting accuracy and ability to resist jamming, and add security features to prevent exploitation and increase overall system resilience, safety, and stability.

Airborne ISR

There is an ever-increasing demand for ISR assets to inform and enable our current and future warfighting efforts; PB17 invests in aircraft procurement and ISR support infrastructure. This is an area where we must increase both capacity and capability in the coming years. Continued shortfalls will stress the force to meet current requirements and do not provide any surge capacity to address near-peer challengers or overlapping contingency operations.

The Navy is reducing planned Unmanned Carrier Launched Airborne Surveillance and Strike program capabilities in order to deliver a low-end, permissive-environment tanking and surveillance capability (saving approximately $680M across the FYDP). The Air Force projects no significant change from PB16, maintaining its plan for 60 M Q–9 Combat Air Patrols and JSTARs Recapitalization.

Power Projection

PB17 addresses critical power projection capabilities and related assets required to operate in non-permissive environments stemming from adversary advances in A2/AD. PB17 leverages ongoing initiatives to improve survivability of critical assets and enhance offensive strike capability. It invests in hypersonic vehicle concepts, flight demonstrations, infrastructure, and advanced conventional warheads. It also funds improvement in critical base and missile defenses through expedient shelters and multispectral camouflage. Finally, it increases the survivability in the undersea domain by investing in Maritime Strike Tactical Tomahawk capability, Unmanned Undersea Vehicle capabilities, additional Virginia Payload Modules, and Acoustic Superiority Program upgrades on *Ohio*- and *Virginia*-class submarines.

Shipbuilding

Joint Force shipbuilding investment is on track to meet fleet goals in PB17. The Navy continues to grow the size of the fleet toward the goal of 308 ships to meet warfighting and posture requirements. PB17 continues procurement of 10 DDG–51 Flight III destroyers across the FYDP but reduces planned Littoral Combat Ship procurement from 52 to 40. It also invests in undersea capabilities as described previously.

Munitions

PB17 invests in rebuilding depleted stocks of precision guided munitions and in future critical munitions capabilities and enhancements. Specifically, the budget includes $1.8 billion for precision guided munition replenishment due to usage during ongoing operations. Looking toward the future, the Navy is maximizing production of SM–6 missiles while maintaining required levels of other advanced munitions. It is also beginning development of follow-on torpedoes and modernizing Tactical Tomahawk to enhance maritime strike capability. The Air Force will continue with last year's plan to convert unguided bombs into all-weather smart weapons. The Marine Corps and the Army are funding RDT&E to support fiscal year 2020 development of area effects munitions compliant with the Departmental cluster munitions policy. Finally, the Army plan procures an additional 80 Army Tactical Missile System (ATACMS) Service Life Extension Program missiles, which bridges the capacity gap until the Army can develop and procure improved capability ATACMS.

Nuclear Enterprise Sustainment and Recapitalization

Because nuclear deterrence is the highest priority of the Department of Defense, PB17 enhances investment in all three legs of our aging nuclear triad. Within the nuclear enterprise, the budget funds $19 billion in fiscal year 2017 and approximately $108 billion across the FYDP, adding $9.8 billion (an increase of 10 percent) to sustain and recapitalize the nuclear triad and strategic command, control, and communication systems. It invests in legacy strategic bomber modernization, ground-based strategic deterrence, incremental funding of the first ship of the *Ohio*-class replacement program, long-range strike bomber, long-range standoff cruise missile, and the security helicopter replacement.

Counterterrorism

The fiscal year 2017 budget request includes approximately $13. billion to support counterterrorism efforts in South Asia (Afghanistan), the Middle East (the Levant), East Africa (Djibouti), and an enhanced presence in North/West Africa. These capabilities are essential to implementing a new framework to counter terrorism, particularly against ISIL, that more effectively synchronizes counter-VEO efforts within the Department and across the Government.

PEOPLE AND INSTITUTIONS

Talent and Leadership

Beyond budgets and technology, the All-Volunteer Force remains our greatest asset and true warfighting competitive advantage. The future operating environment will place new demands on leaders at all levels. Our leaders must have the training, education, and experience to meet those demands. We are undertaking a series of significant changes to the personnel systems which have previously underpinned the Joint Force: military pay and compensation modifications, retirement reforms, talent management initiatives, and diversity integration efforts. These changes aim to make the Joint Force an inclusive, more agile, and stronger force by leveraging the talents of all qualified citizens to meet the challenges of the future. The Services are responsible to assess and execute these changes; not all will be easy. However, we are committed to preserving standards, unit readiness, and cohesion, and we will steadfastly adhere to our principles of dignity and respect for all servicemembers over the continuum of their service and beyond.

End strength

Our end strength is driven by strategy but is also constrained by current fiscal realities. PB17 projects the force end strength consistent with the 2014 QDR forecasts. However, the emergence of ISIL and Russian revanchism has changed the strategic environment since the QDR was published. Force availability shortfalls hamper our ability to rapidly respond to multiple, overlapping contingencies. End strength reductions below the current plan must be carefully weighed against the end states sought by the Department.

Active Duty Service end strengths in the proposed PB17 remain relatively constant across the FYDP (less than 0.7 percent overall reduction by fiscal year 2021). The Active Component will be reduced by 9,800 personnel across the Services by fiscal year 2021, with most of that reduction coming in the Army by fiscal year 2018. Reserve Component end strength will see negligible decreases. Specifically, the Army will maintain end strength and capacity to meet operational requirements, and build a rotationally focused and surge-ready 980,000 Total Army (450,000 Active Component), consistent with the 2014 QDR. Both the Navy and Marine Corps will maintain Active Component end strength numbers at 323,000 and l 82,000, respectively. The Air Force will maintain Active Component end strength at 317,000.

VII. CONCLUSION

PB17 reflects difficult choices made in the context of today's security challenges and fiscal constraints. Our budget submission balances investment in the high-end capabilities needed to counter major power competitors, the capacity to meet current operational demands and potential contingencies, and the need to rebuild read ness after an extended period of war. However, to accommodate a constrained topline, PB17 defers near-term modernization which will only exacerbate a coming bow wave of strategic recapitalization and other procurement requirements. More broadly, the cumulative effect of topline reductions over the past several years has limited the flexibility and resiliency of the Joint Force, and looking ahead I am concerned that the demand for future capabilities and capacity will outpace the resources available, forcing even more difficult decisions to match strategy and resources. I am grateful to Congress for your continued support, and I look forward to working with you to ensure the United States maintains the most capable fighting force in the world—and to ensure we never have to send American men and women into a fair fight.

Chairman MCCAIN. Secretary McCord, do you have any statement?

Mr. MCCORD. I do not, Mr. Chairman.

Chairman MCCAIN. Well, thank you. I thank the witnesses.

Mr. Secretary, I appreciate your comments about the Iranian behavior and their subsequent behavior exploiting this humiliation of American servicemembers. What action have you recommended that we take in response to this?

Secretary CARTER. Well, we're—everything we're doing in the Gulf, Chairman, including all of the actions that are funded in this budget, which include tens of thousands of Americans in the region—we want that—our ballistic missile defenses in the region—we want that——

Chairman MCCAIN. I see, but all of these things are planned and in the budget. I wonder if you had planned on any specific action that the Iranians would know is a result of our—humiliation of our servicemembers.

Secretary CARTER. Well, I've made it quite clear that——

Chairman MCCAIN. You've made it quite clear that you're outraged and all that, but what specifically have you recommended to do in response to that?

Secretary CARTER. We're continuing to take all of the actions that we need to——

Chairman MCCAIN. What—obviously, the—the specific action in response to the Iranian outrage.

Secretary CARTER. At the time of the incident, we prepared to protect our people. It turns out they were released in time. We later had the opportunity to see them being filmed in the way they were. It made very clear that that's the kind of behavior we wouldn't want to engage in.

Chairman, you want to add anything?

Chairman MCCAIN. Is stability in Afghanistan and the region in our national interest, particularly in light of the testimony of General Campbell and General Nicholson that the situation in Afghanistan is deteriorating?

Secretary CARTER. I'll start there and then ask the Chairman to chime in.

Chairman MCCAIN. I'll ask—fine.

Secretary CARTER. The—well, the situation in Afghanistan is very important to us. We have—the Afghans had a tough fight this

last fighting season. They're going to have a tough season this time. It's important that we—not just we, but the rest of our coalition, stay with them, not just this year, in 2016, but in 2017 and so forth. We're continually assessing and adjusting how we give support to the Afghan Security Forces——

Chairman MCCAIN. Do you—but, you don't disagree with General Nicholson and General Campbell—I guess I'll ask General Dunford—that the situation is deteriorating in Afghanistan? Do you agree with that?

General DUNFORD. Chairman, I listened to their testimony. I think they provided an accurate assessment of the situation in Afghanistan.

Chairman MCCAIN. Do you consider the Taliban to be a threat to Afghanistan's stability?

General DUNFORD. I do, Chairman.

Chairman MCCAIN. Then, why do U.S. Forces not have the authority, other than self-defense, to target Taliban fighters in support of our Afghan partners?

General DUNFORD. Chairman, right now——

Chairman MCCAIN. The threat to our stability and the situation is deteriorating, and yet we were—still don't give the authority of American forces to—other than self-defense—to target Taliban fighters.

General DUNFORD. Right now, Chairman, our authorities are focused on supporting the Afghan forces in their fight against the Taliban.

Chairman MCCAIN. So, even though the situation is deteriorating, even though they continue their attacks, even though—then we still do not give the U.S. Forces the authority to target Taliban fighters unless they are directly attacking the United States.

General DUNFORD. At this time, that's correct, Chairman.

Chairman MCCAIN. Does that make sense to you?

General DUNFORD. Chairman, we're in the process of reviewing the lessons learned from 2015. We have some recommendations made by General Campbell. We——

Chairman MCCAIN. We're well into 2016, and right now the plan is to cut the force from 9,800, drop down to 5,500 by the end of this year. Here we are, in March.

General DUNFORD. Chairman, where I was going was, we have recommendations from General Campbell for changes made by—made—to make in 2016 as a result of lessons learned in 2015. This week, we conducted a video teleconference, Secretary Carter and I with General Nicholson, who's on the ground in Afghanistan right now, to get his thoughts. We're in the process of making recommendations to the President for changes that might be made to make us more effective in supporting Afghan forces in 2016 and making them more successful.

Chairman MCCAIN. Including the force levels?

General DUNFORD. A full range, to include capabilities, that's correct, Chairman.

Chairman MCCAIN. Last year, in the 2016 Future Years Defense Program, where you indicated that you needed an additional $37 billion above the BCA caps in 2016, the then-Chairman of the Joint Chiefs of Staff said we're at the lower ragged edge of manageable

risk. Now you're saying that it seems to be okay, even though the Army had to cut 24 UH–60 Black Hawk helicopters, the Air Force had to cut 5 F–35s and 45 over the next 4 years, the Air Force—the Navy plans to lay up an additional 5 cruisers, the Marine Corps plans to cut 77 joint light tactical vehicles and $1.3 billion in military construction, et cetera, et cetera. All of those cuts are being made, as opposed to what you asked for last year.

So, now you're saying that we can—and, by the way, we've seen this bow-waves movie before. When you cut F–35s, when you cut the Black Hawks, when you cut them, you increase the costs, because the original plans are at optimum cost. So, now you're satisfied with the level, which is $17 billion less than last year, even though your predecessor said we were on the lower ragged edge of manageable risk with the amount we had last year, which was $17 billion more. It's hard for us to understand, General.

General DUNFORD. Chairman, to be clear, what I've said is that the budget this year is sufficient to execute the strategy. There is associated risk in that, and I've provided a classified risk assessment to the Secretary. You'll see that some of the investments that we made this year are designed to address that risk.

My most significant concern, frankly, is the bow wave of modernization that has been deferred that we're going to start to see in fiscal year 2019, 2020, 2021, and 2022. So, by no means have I said that the resource level for the Department as we look out over the next few years is adequate. What I simply said was that this year's fiscal year 2017 budget is sufficient to meet the strategy.

Chairman MCCAIN. So, it's okay with you to cut 24 Black Hawks, 5 F–35s, 45 over the next 4 years, Marine Corps cut 77 joint light tactical vehicles, $1.3 billion in military construction, which last year was told to this committee that you needed.

General DUNFORD. Chairman, that's not what I said. I didn't say it was okay to do those things. What I said was, with regard to this budget, we have made the best decisions that we can within the top-line that we were given from Congress. So, what I'm comfortable with is that we have made the right priorities. I'm not comfortable that we have addressed all the requirements.

Chairman MCCAIN. Senator Reed.

Senator REED. Well, thank you very much, Mr. Chairman.

Thank you, gentlemen, for your testimony.

One of the key issues that the committee is focused on and you're focused on is readiness. General Dunford, readiness is a function of not only resources, but time. Can you explain, or at least—I think the question is, Within the constraints you face, which are significant, you have tried to maintain and improve readiness, but that won't happen just with more money. That'll take time.

General DUNFORD. Senator, thank you.

That's right. From my perspective, there's three components. There's the money, there's the time, and then there's operational tempo. The operational tempo has maintained at a very high level, even as the force has drawn down from its peak, 3 or 4 years ago. As a result of sequestration, and particularly in 2013, we laid off a lot of engineers, we laid off a lot of artisans. We had a backlog of maintenance. That's going to take time to recover from that

backlog of maintenance. In some cases, we deferred modernization issues, equipment, and so forth, that'll have an impact on readiness. Then, being able to recover, from a training perspective, requires an operational tempo that's much more sustainable than the one we have right now. So, from my perspective, that's why it's going to take—and I think you've heard from the Service Chiefs—in probably the near term, one of the services will be ready in about 3 or 4 years; and the Air Force, at the outside, I think has identified 2024 before it fully recovers. In a—and much of that is a function of aircraft maintenance and readiness.

Senator REED. But, in the context of this budget, the resources that you have available, the dollars, for readiness is sufficient at least to continue the improvement in readiness that you must achieve. Is that your estimate?

General DUNFORD. Senator, the Secretary prioritized the readiness, particularly the readiness of those forces that will deploy. We have bought as much readiness as we can in fiscal year 2017. Many of the issues that we have with regard to readiness can't be addressed with additional resources this year. Again, they'll take time.

Senator REED. Thank you.

Mr. Secretary or Mr. McCord, with respect to procurement, my understanding, but please correct me, is that you've done all you can to maintain multiyear contracting for systems, which essentially keeps us in the ball game, if you will, but that if we do not fix the sequestration problem next year, this fragile structure will sort of fall apart. But, we are still maintaining the cost-efficient multiyear contracting——

Secretary CARTER. We are.

Senator REED.—and we're not cutting back on those deals.

Secretary CARTER. No, we are. This gets to the point the Chairman raised about, How are we—how did we accommodate the difference between what we planned last year and what we got in the Bipartisan Budget Agreement. That—what I described as a net of 11 billion of our almost 600 billion. How did we accommodate that? As the Chairman said—and I was very insistent upon this, as was the Chairman—we protected readiness. So, the principal impact came in a number of modernization programs, to include aircraft, shipbuilding, a number of minor modernization programs. That's what we did. It's all out there, and I'm sure you'll be reviewing it.

What we didn't do was not fund the service readiness recovery plans, where—as they try to move back to full-spectrum readiness from where they've been after the Iraq and Afghanistan wars. That's what we need in all of the services, is full-spectrum. Making up some of the maintenance backlog, that particularly affects Marine Corps aviation. We did not change any of our end-strength goals. We did not change military compensation to make this difference. We didn't terminate, to your point, any major programs, any multiyear contracts. We didn't RIF [reduction-in-force] any employees. We didn't have to do any of that, but we did have to make adjustments. They're there for you to see.

Are we happy making those adjustments? No, but that's what we needed to do to accommodate the Bipartisan Budget Agreement. Now, if the Bipartisan Budget Agreement were to fall apart, as ev-

eryone has said, that is our biggest strategic danger, because that will affect, in the future years, our ability to recover full-spectrum readiness, it will affect all those things that we did not have to affect this year. But, that's how we adjusted to the Bipartisan Budget Agreement.

Senator REED. Just a final point. Is—the concurrence or the opinion that has been expressed by, I think, everyone here about other need to end sequestration before 2018 is critical, paramount, has to be done.

Secretary CARTER. That is the greatest strategic risk to the Department of Defense, is the reversion to sequestration. I very much hope we can avoid that.

Senator REED. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman.

I'm not going to ask a question about Gitmo. This is a budget hearing, but it's one that you should both be aware that the—there are two groups of people at this table up here. One is the hardliners, who feel it's just absurd to even think about giving up the resources that we have there, and particularly in light of the fact that we have a recidivism rate of, what, 30 percent or so. Others are going to be talking about—asking questions about that, so I'll let them take the time to do that. But, that'll be one of the considerations you have.

You know, it's easy to kind of get—I'm not saying that we're hearing glowing reports right now, but we do hear all the time, as you said, Secretary Carter, we have the best-equipped, the best-trained, and all of that. That sounds good. That's the good side. But, there's a bad side, too. We're not where we normally should be and have been in the past. Have you—we've had probably more hearings, in the years that I've been on both the House and the Senate Armed Services Committee, this year than we've ever had before. I think I—I think that's the right thing to do. People are going to have to wake up and know the problems that we have.

Now, when we—before this committee, Lieutenant General Nicholson said the security situation in Afghanistan is deteriorating. I think we probably agree with that. Last week, General Austin, before this committee, the—he's the CENTCOM [U.S. Central Command] Commander—in response to Senator McCain's question, he testified to this committee, just last week, that it may be time to reconsider the plan to reduce America's military forces in Afghanistan.

General Dunford, is he right?

General DUNFORD. Senator, thank you.

As a matter of fact, we're in the process right now of reviewing——

Senator INHOFE. Of reconsidering.

General DUNFORD. Absolutely. It's a constant process, Senator. The Secretary and I have spent a fair amount of time on it, just this week, with General Nicholson, and we spent some time with General Campbell before he left. We're in the process of bundling together some recommendations to bring forth to the President.

Senator INHOFE. You know, we hear dates all the time about when something's going to be decided. Now, let—isn't it better idea

to let conditions on the ground determine what and when we're going to—changes we're going to make?

General DUNFORD. Senator, I think that's exactly what we did in the fall when a decision was made to keep 9,800 through 2016. So, I agree with that.

Senator INHOFE. Okay. The two quotes that I gave from General Austin and General Nicholson, have you discussed with them specifically about the force-structure requirements?

General DUNFORD. We have, Senator.

Senator INHOFE. Okay. Have you presented any of the recommendations to the President?

General DUNFORD. We have not yet, Senator.

Senator INHOFE. All right. Are——

General DUNFORD. We're still in the process of deliberating that, between the Secretary and I. We had a video teleconference with General Nicholson this week to make sure that we get the latest from him. He's now had a chance to—in both his predeployment site survey as well as being on the ground now since taking command, he's had a chance to make a personal assessment. It was important to both the Secretary and I that we heard from General Nicholson before we went—move forward.

Senator INHOFE. Okay. Let me include one more thing that I want to get in this committee. Because we've had a lot of people testifying, the very best that we have. I have a great deal of respect for all of them, and they are very blunt about the problems that we have. Admiral Gortney, NORTHCOM [U.S. Northern Command] commander, he testified to this committee, just last week, that North Korea's recent nuclear test and satellite launch demonstrate that Kim Jung Un, which we know is mentally deranged, his commitment to developing strategic capabilities as well as his disregard for the U.N. Security resolutions, we all, I think, agree with that. Admiral Harris said—the PACOM [U.S. Pacific Command] Commander—he testified to this committee that Chinese coercion, artificial island construction, militarization in the South China Sea threaten the most fundamental aspect of global prosperity, freedom of navigation, and their forces are opening at a higher tempo, in more places, with greater sophistication than ever before. Do you—the two of you agree with that?

Secretary CARTER. I certainly do, Senator. This is, by the way, why we need to remain vigilant with respect to North Korea and its ballistic missile activities and other activities. I mentioned "fight tonight." This is why we need the budget that we're asking for, and why we've got to avoid sequestration in the future. These are all serious matters.

Senator INHOFE. Well, all serious matters. I contend that we're in the most threatened position that we've ever been in as a Nation. I look back wistfully at the days of the Cold War. I mean, right now, we have people like—mentally deranged people might have a capability of wiping out an American city. So, that's a serious thing.

I would only leave you with a quote that both of you heard last week from Congressman Frelinghuysen, when he read you a quote made by Winston Churchill 70 years ago. This is the quote. He said, "What—from what I have in"—particularly keeping in mind

of what Putin has been doing in the Ukraine and other places, disregarding the threat that we would pose to him—he said, 70 years ago, "From what I have seen of our Russian friends and allies during the war, I am convinced that there is nothing they admire so much as strength, and there's nothing for which they have less respect for than weakness, especially military weakness." I want you guys to keep that in mind as you're developing this budget.

Secretary CARTER. Will do.

Senator INHOFE. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Gillibrand.

Senator GILLIBRAND. Thank you, Mr. Chairman.

Thanks, to all of you, for your service and for this hearing.

I want to talk briefly about cyber. Cyberattacks against the Homeland are already a menacing threat to U.S. infrastructure, businesses, and defense. In the case of a severe domestic attack, DOD's unified commands will be responsible for coordinating a response in support of the Department of Homeland Security. However, CYBERCOM [U.S. Cyber Command] has reported a projected shortfall in its manning goals for fiscal year 2018, and there are concerns that DOD cyberoperators, both Active and Reserve, may not be able to seamlessly operate under the current patchwork of relevant authorities. How would you assess current coordination and interoperability between NORTHCOM, STRATCOM [U.S. Strategic Command], and Homeland Security? What could be done legislatively to complement those relationships? Can you describe the level of involvement the National Guard cyber operators might play in the event of a major domestic cyberattack? Do you believe they are adequately trained, equipped, and funded to meet that expectation? Finally, do you believe each responsible agency with cyber mandate, defense or otherwise, currently has the authorities it needs to coordinate an effective response domestically?

Secretary CARTER. Thank you, Senator.

Let me take the part about the Guard first, if I may. It—I was out in Washington State a couple of weeks ago, where there is a terrific National Guard unit working on exactly what you're talking about; that is, defending the Nation and also defending our DOD networks, upon which we're so dependent, from cyberattack. These are people who—whose day job is to be the cyber defenders for some of our most important IT companies and tech companies. So, they're at the highest skill level that the private sector has. They're making their skills available to their country through the National Guard. So, this is a tremendous strength, among many, of the National Guard, the ability to bring us—to us a talent that we would otherwise have difficulty attracting and retaining.

To get to your first part of your question, nevertheless, we do try to attract and retain, and we have some success in that regard. That's what we're doing as we build out the 133 cyber mission teams for CYBERCOM. CYBERCOM does work, not only with our combatant commanders on wartime needs, including, by the way, joining the fight against ISIL and disrupting ISIL, blacking out ISIL, but also defending the country. Now, we do do that, as you suggest, in connection with Homeland Security, in connection with law enforcement. All that's perfectly appropriate. I—there are some

legislative acts that have enabled us better in that regard. It's possible that we could do still better in that regard.

With respect to CYBERCOM's own authorities, I will tell you that we adjust them continuously. Just this week, actually, I'm talking to Admiral Rogers about some of his authorities and what we can do to expand those authorities. So, it's a very actively moving——

Senator GILLIBRAND. So, could you submit a letter to me or this committee if there's additional authorities you feel you need——

Secretary CARTER. Will do.

Senator GILLIBRAND.—so we can work on that?

With regard to military sexual assault, you're aware that, every year, I've been asking for files from the four major bases, and this year I added the four major trading bases, so I could just get a snapshot in time of, How do these cases go? What do they actually look like once they're filed and once they're taken to court? What we find is that more than half of the victims are civilians, which isn't entirely captured by our survey—spouses and civilians, not fully captured. The second thing I learned was that there's a 50 percent dropoff rate; once someone actually files a complaint, about 50 percent do not continue with their complaint during the course of the year, which is a huge problem. One of the things that this committee's done is, we are going to put in place a defense advisory committee on investigations, prosecution, and defense of sexual assaults. That's supposed to be an independent civilian review board that looks at this, designated by the President. It's very important to me that the executive director of this committee is independent, so that they can actually give us advice. I would like your commitment that you will look at the staffing of that individual. I'm hoping that you will chose a civilian to be the executive director, and one with prosecutorial experience; specifically, experience in sexual violence prosecutions, which are among the hardest to ever end in a conviction.

Secretary CARTER. Well, I—first of all, I thank you for your leadership in this issue. It's a really important issue. Of course we'll work with the committee on this—in this, and I promise you that, as in other matters. I'll just say very clearly to you how much I appreciate your leadership on this issue, because this is unacceptable in our military, because our military is about honor and it's about trust. Sexual assault violates honor and trust. So, we can't have any of it. The more we learn, the more we—as you say, there are other dimensions to it. Civilians, retaliation, which is another thing that you have rightly stressed, we need to pay attention to. So, this is something that we cannot stop learning about and doing better about. In this respect, I promise to continue to work with you.

Senator GILLIBRAND. Thank you.

General Dunford, because I'm out of time, I'm going to submit for the record a specific question about combat integration that I would love your response on.

General DUNFORD. Thank you, Senator.

Senator GILLIBRAND. Thank you so much.

Senator GILLIBRAND. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Fischer.

Senator FISCHER. Thank you, Mr. Chairman.

Secretary Carter, I'd like you to talk more about the third offset initiative. Specifically, what is new about it? Is it new money? Is it a new way of using that money? As you know, we spend tens of billions of dollars every single year researching and developing technologies. That is well in excess of our adversaries. This committee's heard a lot about how our technological edge is eroding. So, I'm wondering, if that level of investment, and specifically the way we are using it, wasn't sustaining our technological advantage, what about the offset initiative is going to ensure that that avoids a similar fate?

Secretary CARTER. Well, thank you, Senator.

Our efforts are about both new money and new ways of using that money. The new money, we are asking for in this budget, notwithstanding the $11 billion that we absorbed. We didn't take that in our RDT&E [research, development, test, and evaluation]. We are increasing research, development, test, and engineering, relative to last year. Science and technology, which is part of that, also. But, we are doing it in new ways. I'll give you a couple of examples of that—two very important examples.

One is reaching out to the high-tech industry that does not have a tradition of working with the Department of Defense. When I started out in this business, long ago, it was—all the major technologically intensive companies in America worked with the Defense Department. It was part of the legacy of World War II and the Cold War. I'm trying to, and we are trying, in the third offset, to rekindle those relationships with the high-tech industry. We find them willing, patriotic, eager to help serve. We have to do it in a way that's compatible with their business and technology models. We're doing that.

Secondly, we have some innovative new parts of our Department. One I've called attention to is the Strategic Capabilities Office, which is specifically looking at, and has already made major progress in, highly innovative things, like electronic warfare drones. They're—that's the place where the idea of giving the SM–6 missile anti-ship capability came from, taking an old system, giving it a brand new capability. So, we're trying to back the innovators in our Department as well as connect with the best parts of innovative American society. Because, next to our people, our technology is what makes us great, and we get our technology because we're part of the most innovative country in the world.

Senator FISCHER. So, you would say that the process for developing these technologies—would you say that it has not been working in the past, and that's one of the main focuses, then, of the offset, is to not only work within the Department, but also to reach outside the Department, and not necessarily looking at specific programs, but having a more open, innovative mind——

Secretary CARTER. It is——

Senator FISCHER.—on this, then?

Secretary CARTER. Certainly, that's what it comes down to. Both our traditional programs, we need to make them move along faster, make them more agile, do a better job of incorporating technology in them, and reaching out to the innovative part of our society and trying to get—getting them interested in these vitally important

national security problems, and working with us, as has been the tradition in America for decades and decades.

Senator FISCHER. Right. You know innovation is very risky. So, when we're looking at putting more money into the programs, I think all of us realize that losses are going to occur. We're not going to see a success rate with every program that you're trying for. There will be no results in some areas.

Secretary CARTER. That's correct. If you——

Senator FISCHER. We're not——

Secretary CARTER.—don't take risks——

Senator FISCHER. But, we're not in a risk-tolerant environment. How do you address that?

Secretary CARTER. Well, it's—that's a problem. We want our innovators to take risk. Taking risk, by definition, means that sometimes things won't go the way you'd hoped when you're exploring a technological frontier, when you're testing a weapon system. We have to be tolerant of risk as—provided that risk was taken advisedly, in the interests of making a leap ahead in technology. We have to do that. If we're too risk-averse, then we're always going to be behind the technological curve, and not up with or above the technological curve. Our enemies take risks. No question—our potential enemies take—they take those risks. We need to take those risks also.

Senator FISCHER. Thank you, sir.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Kaine.

Senator KAINE. Thank you, Mr. Chair.

Thanks, to all of you, for your testimony.

General Dunford, you, in an interchange with the Chair about, you know, how you look at PB17 [President's Budget request for fiscal year 2017] and whether it does all you might want to do, I think you said, quote, "Our budget is based on the top-line that Congress gave us." As I look at your written testimony—I'll just read it—"To accommodate a constrained top-line, PB17 defers near-term modernization, which will only exacerbate a coming bow wave of strategic recapitalization and other procurement requirements. More broadly, the cumulative effect of top-line reductions over the past several years has limited the flexibility and resiliency of the joint force, and, looking ahead, I'm concerned that the demand for future capabilities and capacity will outpace the resources available, forcing even more difficult decisions to match strategy and resources."

The constraint that we're talking about with respect to these top-lines is the 2011 sequester BCA caps, correct?

General DUNFORD. That's correct, Senator. In—and I think, particularly, as I recall, fiscal year 2013 was particularly devastating——

Senator KAINE. Right.

General DUNFORD.—to our ability to plan and execute.

Senator KAINE. We had an opportunity to turn off sequester before it went into effect on March 1, 2013, and we chose not to turn it off, and then that has created downstream challenging consequences.

So, the real issue, I think, for us, if we put national security first, has got to be, What do we do about that constraint? Now, what we've done is, we've done two 2-year budget deals in a row that have averted some of the sequester cuts and provided some relief from the BCA caps. But, in each instance, when we did that, we also pushed the budget caps out an additional 2 years. So, you are facing the reality of—it's like an automatic snap-back sanction in these budget caps. If Congress were to not agree on a budget—and we've got a history of not agreeing on stuff over time—we will snap back to a punishing sanction against our own Nation's ability to defend ourselves. We've now pushed that out significantly into the future, into the late 2020s. That's the risk that you're talking about. The risk of falling back into sequester and punishing our national security is the significant concern that we're grappling with.

General DUNFORD. Senator, that's exactly right. But, even if we avert sequester, we have now accumulated bills that will all come——

Senator KAINE. Yeah.

General DUNFORD.—due simultaneous. As I alluded to in my opening statement, the modernization of the nuclear enterprise will come now at the very same time that we'll start to recover from some of the deferred modernization over the last several years. So, even at the originally projected level of funding that the Department asked for, I would assess that probably in the late teens and early 2020s, again, we'll hit this bow wave of modernization that'll make it very difficult to balance readiness, force structure, infrastructure, and modernization. That's the balance that we try to have. The more out of balance we have become over the last few years, the more difficult it will be to achieve balance in the out years.

Senator KAINE. There are some who, I think, have—I've heard argue that we don't—you know, we don't need to worry that much about sequester and the BCA caps, because what we can do is, we can just plus-up the OCO [overseas contingency operations] accounts as we kind of approach the budgetary challenges each year to try to deal with these issues.

Now, from my way of thinking, that can be some short-term, temporary relief. But, OCO, which should have a particular role in a defense budget, obviously—but, OCO is not money that you can really count on. You can't count on it for following years. You could get OCO money in a year, but you would still face the sequester coming back, you're not sure whether you can count on OCO money the following year. Wouldn't you agree with me that sort of relying upon successive annual battles about OCO funding is not near the same as providing you with the kind of certainty that you need to have?

General DUNFORD. Senator, we need three things. We need predictability. We need the right level of resources. We need those resources to be in the right areas. We need all three of those. I couldn't agree with you more.

Senator KAINE. Well, my hope is, as we are talking about the NDAA [National Defense Authorization Act] this year, is that we will really grapple with this sort of snap-back sanction that we're imposing on ourself, which, if it ever—if we ever fell into it—I

mean, again, I hope we're always going to be able to reach agreements, but we've now pushed this sequester and the BCA caps out for quite some time, and if somebody decides to hold up the process or we just can't reach an agreement for a good-faith reason, we are just—built this self-punishment into our mechanism. I hope part of what we might try to do in the NDAA this year is just agree, look, we are not required to continue a sequester that was put in place with budget caps in the summer of 2011, pre-ISIL, pre-Russia into the Ukraine, pre-North Korea cyberattacks, you know, pre-Ebola, pre-Zika. We don't have to live by a 2011 reality in 2016. I—and if anyone will see this and the importance of it in Congress, it's going to be the Armed Services Committees in both houses. We should be at the forefront of this. I know the Chairman has made this an important priority, and will continue to do that.

Thank you very much.

Chairman MCCAIN. Senator Wicker.

Senator WICKER. Thank you.

I'm glad Senator Kaine brought this up, because it's exactly what I wanted to start with. The Chair has made this a priority.

Let me just ask you, Secretary Carter and General Dunford, looking back several years ago, when sequester was headed our way but we really didn't think it was a reality,—I would ask people in your chair, other people, Are you planning for sequester? Their answer was, "No, we're not planning for it. It was never intended. We were sure you ladies and gentlemen will fix it. It's unthinkable that we would do this." Of course, the unthinkable happened, and we had to deal with it.

Now, you—we've dealt with it once, and that was bad enough. But, tell us about how going there a second time would be a whole new problem. General Dunford, did I—and I'll let you go first—did I hear you say, if we avoid sequester this time, we still don't have enough money to take care of the national defense needs that you have to take care of? Is that what you're saying?

General DUNFORD. Senator, it is. What I'm saying is, even at a level of funding that avoids sequestration, we have a bow wave of modernization that's, in part, a result of the last 3 or 4 years of the budget, and also a result of that bow wave for the nuclear enterprise that I alluded to. So, when you look at deferred modernization, the modernization that we would do in a normal course of events, plus the nuclear enterprise all coming due at or about the same time, my assessment is that we would be—we will be challenged even if we are at above sequestration level of funding. With regard to the other 100 billion, I would just simply say—and Senator Kaine has listed the things that have all changed since the defense strategic guidance was written in 2012—my assessment is that if we are confronted with——

Senator WICKER. So, let's reiterate those. Because I've——

General DUNFORD. Well, I—it's very simple.

Senator WICKER.—interrupted your train of thought. But, we're talking Russia, we're talking ISIL——

General DUNFORD. I'm talking Russia, I'm talking ISIL, I'm talking the behavior of North Korea, I'm talking increased malign influence by Iran, and I'm talking about the activity in China, which concerns us, in terms of maintaining a competitive advantage.

Their investment over time in their defense capabilities and some of their behavior in the Pacific also concern me from a competitive-advantage perspective. So, I would say there have been profound changes in each of the 5 challenge areas identified by the Secretary that should inform future budgets.

Senator WICKER. Okay.

Secretary Carter, are—is there some room in your shop where we are planning for this disastrous eventuality if we're not able to reach an agreement and if the law of the land, which is sequestration, again, kicks in?

Secretary CARTER. Well, let—first of all, let me associate myself with everything that Chairman Dunford said. It's exactly right.

With respect to your question, Senator, sadly, the Department did learn what it was like to feel sequester. I'll—I can say what some of the effects are, and you'll immediately see why we're so concerned about it kicking back in the future. Uncertainty and turbulence cause us to do things inefficiently managerially. So, like issuing short-term contracts, turning things on and off. The strategy that the Chairman was just referring to, and the 5 major threats we face, those aren't 1-year things. We can't budget and program 1 year at a time, herky-jerky fashion and meet those. It's unfair to our people for them to have budgetary uncertainty. They look here, they look to Washington, and they wonder what's going on and what is their future. I'm concerned about the picture it paints in the world when we do this to ourselves, to our friends and also our potential foes. So, we do know what the consequences are. We did go through it in recent years. It has very deleterious effects on how we manage ourselves and how we protect ourselves.

The last thing I'd like to say is also to associate myself with something the Chairman said particularly with respect to the nuclear enterprise. We see bills out there for the—to keep safe, secure, and reliable nuclear arsenal, just to pick one very big item, which will include the *Ohio* replacement-class submarine, ICBM modernization—we go down that road—and other things. That money is going to have to be provided for us to have that. That's a bedrock capability. So, averting sequestration, absolutely necessary, but, on top of that, we're going to need the funding that the country needs in future years to defend ourselves and protect our people.

Senator WICKER. Well, thank you. We rely on you to tell us what you need. Let's speak it out loudly and clearly from both sides of this table, and make it clear that what is at stake is nothing less than the national security of Americans.

Thank you, all three.

Chairman MCCAIN. Senator Blumenthal.

Senator BLUMENTHAL. Thanks, Mr. Chairman.

We often remark, in this committee, to thank the witnesses for their service to our Nation. Truly, we have three individuals this morning who have served our country over many years with extraordinary and unique distinction. So, we thank—I thank you for all of your service to our Nation.

Secretary Carter, you noted, in your testimony, that we do not have the luxury of choosing between strategic challenges that our Nation faces. Certainly one of those challenges is undersea warfare.

As you know, our attack submarine force is projected to fall below the minimum desirable, 48 boats, by 2025. It may go as low as 41 by 2029. Our submarines are among our most versatile, stealthy, and strong forces available to defend and also to conduct offensive operations. Considering the gap that we are approaching in submarine capabilities, wouldn't it be wise to consider building three submarines a year, two *Virginia*-class along with the *Ohio* replacement program? Would you support such a move?

Secretary CARTER. Senator, thanks.

First of all, with respect to your general point about the critical importance of undersea dominance, that's an area where our military excels over all others. It's a critical area that we are targeting in this critical budget to keep and extend that advantage. It involves submarine construction. It involves, as I mentioned, the *Virginia* payload module, some other things, like undersea—unmanned undersea vehicles that—some of which I can talk about, some of which I can't—and a host of other undersea capabilities. So, that's a major thrust of this budget.

With respect to submarine-building numbers, we have laid into the budget this year, as we planned, and we've—we sustained that, we stuck with that—our two submarines per year through the FYDP [Future Years Defense Program]. Your question is, Will we, as we get to the point of the *Ohio*-class replacement in the future, want to add submarine shipbuilding capability and ships per year? Yes. That gets back to the point about having the money, when we begin the *Ohio* replacement, to keep a safe, secure, and reliable deterrent. We can't have that at the expense of our general-purpose Navy. That's a point we've all been making. That's going to require additional funding.

Senator BLUMENTHAL. So, if the shipbuilding capacity is there to do it, you would favor going that route, of three submarines a year, if necessary, to meet that gap.

Secretary CARTER. We're—yes, we're going to need to build the *Ohio*-class replacement submarine without shorting the rest of our undersea dominance.

Senator BLUMENTHAL. Secretary Carter, thank you.

Earlier in the week, I think you met with Israeli's Defense Minister and others in the military establishment there. Can you commit to us that you will ensure that Israel maintains its qualitative military edge? Can you update us as to when the negotiations on the Memorandum of Understanding will be done?

Secretary CARTER. I obviously have that commitment. That's something that my good friend and colleague Israeli Defense Minister Yaalon and I discussed. We will do that.

With respect to the MOU [memorandum of understanding], that's something that the President and the Prime Minister discussed, so it's not something that the two Defense Ministers decide. However, in our conversations, which are frequent, the—Minister Yaalon and I do discuss what the Israelis need, now and going forward. I—we use that to inform those discussions about—over the MOU and the amount of help that we give to the Israelis to defend themselves in what is a very dangerous region.

Senator BLUMENTHAL. Finally, I have long been concerned, as many of my colleagues have been, about the Iran ballistic missile

program, its continuing testing. I led a letter to President Obama, with a number of my colleagues, calling for immediate enforcement of sanctions against Iran. The Department of Treasury, following the letter, did indeed enforce sanctions against 11 entities and individuals supporting Iran's missile program. Clearly, more must be done to deter Iran from continued aggressive pursuit of this program. General Votel and General Austin, literally within the past week or so, testified to this committee about the need for increased sanctions. Do you agree?

Secretary CARTER. I do. That's not a responsibility of the Department. But, a responsibility of the Department that we very much fulfill, and I know you discussed with them, is our defensive commitments with respect to Iranian ballistic missiles, both for our forces in the region and our friends and allies, who include Israel, but there are others, as well. That's why we have the missile defense and other capabilities in the Gulf, and why we need to keep them strong. I did discuss those also with Defense Minister Yaalon, including the help we give to the Israelis with respect to Iron Dome and David's Sling and Arrow, which are their three tiers of their own territorial defense against ballistic missiles.

Senator BLUMENTHAL. Thank you very much.

Thanks, Mr. Chairman.

Senator REED [presiding]. On behalf of Chairman McCain, Senator Sessions, please.

Senator SESSIONS. Thank you very much—I won't say would-be Chairman, but actual Chairman, I suppose, for a second. The man who would be Chairman.

[Laughter.]

Senator SESSIONS. Well, it's a political world we're living in.

General Dunford, when you have a—when we look at the Middle East—we've had a number of witnesses testify here over recent months about it. I have come to the conclusion that there's just going to be a lot of violence for a long time. There won't be one victory that would make us safe. I've talked with our Democrat colleagues, and, from their comments in the committee meetings, it seems to me that we do need, and can maybe even agree upon, a strategy that could be bipartisan, that could extend beyond elections, that maybe the whole world would be able to support on how we confront this rising tide of violence and extremism. Do you think that's possible? How close are we to achieving something like that?

General DUNFORD. Senator, I do think it's possible. I think we've done a lot of work, certainly internal to the Department, to take a long-term view of the Middle East and how to deal with the challenges inside of the Middle East. I couldn't agree more. You know, we can't—no more than we can develop a budget year-to-year and expect to be successful can we develop a strategy year-to-year and make lurching changes and expect to be successful. So, I think that a basic thesis, Can we get a bipartisan strategy and an approach to the Middle East that will carry out what we have assessed to be a generational conflict?—I fully concur with that.

Senator SESSIONS. So, you assess it as a generational conflict, meaning more than—20 years or more.

General DUNFORD. Senator, I think if you look at the underlying conditions that have led to violent extremism, I can't imagine addressing those in anything less than that period of time. When you look at the economic issues, the social issues, the political issues, the educational issues, those are all things that will take a long period of time. My assessment is that violent extremism, in some form, will exist until those conditions across the Middle East are addressed.

Senator SESSIONS. Secretary Carter, do you agree with that?

Secretary CARTER. I do. I'd go even further than that. I mean, if—first, what can't be tolerated in a generational way is ISIL. That's why we're so intent upon accelerating the defeat of ISIL and—but, to the Chairman's point and to your point, Senator, that isn't going to automatically create a Middle East that is free of extremism. It's not going to create a world that's free of terrorism, because the trends in technology put more and more destructive power in the hands of smaller and smaller groups. So, we recognize—and it's part of our approach to our future defense—that both nonstate and state actors need to figure in the investment portfolio of the defense of this country, going forward. Both of those are featured in our long-term budget. Even though we expect and need to defeat ISIL in the short term, we're making investments to protect ourselves against nonstate actors for the more distant future. I think we have to.

Senator SESSIONS. Well, I tend to agree with that. We need to focus on who needs to be confronted, militarily, and defeated as soon as possible. Certainly, ISIL is number one on that list. Would you agree?

Secretary CARTER. Absolutely.

Senator SESSIONS. At the same time, we have allies in the region, we have allies who oppose some of these forces we oppose. We have some people in the region that would support people that we oppose. So, it's a very complex region, is it not? We have to be—and we need as many allies as we can have. Some of this fighting needs to be done by other people than us over the decade or generation to come. Would you agree with that?

Secretary CARTER. I completely agree. I'll just add to that. I was in Brussels a few weeks ago. I brought together all the Defense Ministers of all the countries that are part of the counter-ISIL coalition. Essentially, my message was, exactly as you say, we're willing to lead this, we're willing to do a lot, because we're powerful, but we need others to get in the game. Particularly, we need those in the region to play their part. Additionally, we need, and we're finding, more partners on the ground, because, both in Syria and Iraq, it's not only necessary to defeat ISIL, but it's necessary to sustain the defeat. Only those who live in the region can sustain that defeat. So, we can help them, we can lead them, but they need to do their part. I emphasized to them that we are going to defeat ISIL, and we'll remember who played their role, and who didn't.

Senator SESSIONS. Well, thank you.

I guess my time's up. I would just thank my colleagues that I—that have expressed concerns about this overall policy of the United States. I believe we could get there. I believe we can achieve a policy that defends the legitimate interests of the United States in bi-

partisan way, and that can be sustained, no matter who gets elected President in the years to come. I think that's important, because a great nation can't be flip-flopping around on commitments around the globe.

Thank you all.

Senator REED. On behalf of Chairman McCain, Senator Donnelly, please.

Senator DONNELLY. Thank you, Mr. Chairman.

Thank the witnesses for being here.

Secretary Carter, we're still losing over 400 servicemembers each year to suicide. We were able to get in the fiscal year 2015 NDAA a requirement for—under the Jacob Sexton Act, that every servicemember receive a person-to-person mental health assessment every year. Can you provide me with an update on the status of the Sexton Act's implementation and when the Department will roll out those annual mental health examinations?

Secretary CARTER. Thanks, Senator. Thanks for your interest in this issue, which is an important part of the welfare of our folks. It is something that we've become increasingly attentive to. I'll get back to you on the specifics of the implementation, that program.

[The information referred to can be found with the printed Questions for the Record at the end of this printing.]

Secretary CARTER. The thing I do know and want to say is that this is being reflected in our healthcare investments. As you know, we spend about $50 billion a year, out of the 600-or-so——

Senator DONNELLY. Right.

Secretary CARTER.—billion we're requesting for you, on healthcare. Over the last few years, we have increased greatly the amount directed at mental health, to provide our folks with resilience, which is what—the program you're talking about, so that they are not as——

Senator DONNELLY. Right.

Secretary CARTER.—vulnerable and susceptible to the kinds of things that might drive them to such an extreme act, and also that we're treating people who already have reached the point where they have that kind of impulse. I'll get back to you with the specifics, but——

Senator DONNELLY. Great.

Secretary CARTER.—but it's very important.

Senator DONNELLY. To continue to remove the stigma from——

Secretary CARTER. That, too.

Senator DONNELLY.—trying to get help.

Secretary CARTER. Mental—we want people to seek mental health treatment when they need it, and we want everyone who's not seeking it to look sympathetically upon that, like getting any other kind of medical——

Senator DONNELLY. Great.

Secretary CARTER.—treatment.

Senator DONNELLY. Thank you.

Mr. Secretary, I know how busy you are and the challenges we face around the globe. One part of trying to solve those problems are our National Labs. As you know, in Indiana, we have Crane Naval Warfare Center. We had talked about you possibly coming to visit, just a morning, or a late afternoon, or a late evening, or

a midmorning at 3:00-in-the-morning visit, so you can get an understanding of the strengths and challenges. When do you think we can make that happen?

Secretary CARTER. I look—are you—will you come with me?

Senator DONNELLY. Yes.

Secretary CARTER. Okay.

Senator DONNELLY. Even at 3:00 in the morning.

Secretary CARTER. It's a deal. I love visiting all of our folks. There's nothing better than going out and getting among the people who serve this Department. In this case, it'll be laboratory scientists, but, whether they're troops or scientists or folks in industry, they're all part of what makes our military great. We'll have a wonderful time, I promise.

Senator DONNELLY. Thank you, sir. I appreciate it.

General Dunford, when you see what has just happened with Vladimir Putin, how do you judge that? What do you think he is doing? How will that affect things in Syria?

General DUNFORD. Senator, it—honestly, it's too early to tell what he's doing. I think those who have tried to predict Vladimir Putin's behavior have been universally proven wrong. What I would say that—is this, though, that, when Putin went into Syria, he said his express purpose was to go down and address ISIL. ISIL is not addressed. What I think it does do is, it makes it clear that his original intent was not what he said it was, which was to go after ISIL, but it was obviously to support the regime. I think what it also does is, for those who question whether the United States is the most reliable partner in the region, or not, I would just say, for the record, we're still there.

Senator DONNELLY. Right.

Let me ask you and then the Secretary. How do we get to Raqqa? The next question, obviously, is when? There's no exact date on that. But, if you could give us an idea of how we get this done and how we eliminate ISIS presence on the ground, because it creates a danger to us.

General DUNFORD. Senator, we're—you know, one thing I would say is, we're already isolating Raqqa right now, and made significant progress over the last couple of months in limiting the freedom of movement between Raqqa and Mosul, cut that line of communication between Iraq and Syria. We've isolated Raqqa to the north with Syrian Democratic Forces who seized an area called Shaddadi, which, again, further cut the lines of communication. We have grown the capability and capacity of the indigenous forces that were supporting in Syria quite a bit. In fact, had I testified a month ago, I would have told you that we had about 2,500 Arabs inside of the Syrian Democratic Forces. Today I can tell you we have 5,000 that are currently planning another operation that will further isolate Raqqa.

Senator DONNELLY. Do you see—just as an aside, not to interrupt you—that number continuing to grow significantly?

General DUNFORD. Senator, I do. I think that's—my projection in the future is based on what's now recently happened. The more success we have—and we've always said that—the more success we have, we'll have what the Secretary described as a snowball effect, where people now are more willing to join us because they see the

level of support that we're providing, and, more importantly, the level of success that these forces are having.

Secretary CARTER. That's exactly right, Senator. We're—what we described in December is transpiring; namely, the SDF is growing in size, the Arab component of that. They're on the move. They've taken Shaddadi. You're right, Raqqa is a key target, because that's what ISIL calls its capital. We need to take that away from them and make it clear that a state based upon the ideology of ISIL is not tolerable. We are, in addition to backing those forces, pressuring Raqqa in lots of other ways—from the air, but other ways, as well.

I want to raise something while we're on this, which is, we have—which is very important—in order for us to win, we need to constantly revise and adjust and take advantage of opportunities. We're trying to take advantage of opportunity right now, the Syrian Arab Coalition. In that connection, if I may, I need to plead for your help in releasing some of the funds that are allocated to precisely that purpose. It's not just about this committee, but we have—we made a request for those funds, and we got four different answers from four different committees. I know that's how the system works, but it's really tough to wage a campaign under those circumstances.

Senator DONNELLY. It's——

Secretary CARTER. So, if I can plead for—as we try to be agile, if we—I can plead for some agility in responding to our funding requests——

Senator DONNELLY. It's——

Secretary CARTER.—I'm very grateful to——

Senator DONNELLY.—it's timely urgent right now.

Secretary CARTER. It is time urgent.

Senator DONNELLY. Okay. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN [presiding]. Senator Ayotte.

Senator AYOTTE. Thank you, Chairman.

I want to thank all of you for being here and for your leadership, service to our country.

I wanted to ask—New Hampshire is facing a terrible epidemic of heroin and Fentanyl that is coming over the southern border, and it's killing people in our States. Recently the Senate passed what's called the Comprehensive Addiction and Recovery Act to deal with the prevention and treatment side and some support for our first responders. But, we know from prior testimony, both from our NORTHCOM and Southern Com commanders, that the networks that are being used to traffic the drugs into our country also are networks that can be used to, essentially, traffic anything.

I wanted to ask both you, Secretary Carter and General Dunford, What can we do to get SOUTHCOM and NORTHCOM the resources they need to tamp down on these networks that not only are killing people in our country, but also can be used networks to traffic other dangerous things into our country, including used by terrorist networks?

Secretary CARTER. Well, I'll start, and then I particularly want the Chairman to comment, because he was just in the region, so he's—fresh insight there. But, the basic story is, as you say, in—

while we do everything here back home to try to protect ourselves from this scourge, we've got to try to interdict the chains of supply. Our forces, in SOUTHCOM especially, but also NORTHCOM, are a part of that. One of the reasons why I'm so committed to working with you up here on the Goldwater-Nichols revisit effort that the Chairman and this committee have spearheaded and I am doing also in the Department and want to do with you, is because that is an area where—your point, which is allocating resources among COCOMs in an agile, effective, and optimal way. That's where, from my point of view, I would like to strengthen the role of the Joint Chiefs of Staff and the Chairman. Because different COCOMs see different things in their regions. They're all deeply expert in their own regions. But, somebody needs to put it all together and give me advice about that, how to synchronize all those forces. I look to the Chairman and the Joint Staff for that. I'd like to get to—for them to have more capability and authority to do so. I hope that's part of our effort.

With that, let me turn it over to the Chairman, who just happened to be in the region last week.

General DUNFORD. Senator, I did—as the Secretary said, I spent last week on this issue. I visited Southern Command, visited our Joint Interagency Task Force, and then I went down to Colombia. On the bright side, what I was encouraged by is, the amount of information that we have, the amount of intelligence we have today far exceeds what we used to have. If you look at the Joint Interagency Task Force alone, 15 different countries, now, sharing information intelligence.

But, what I found is that what we know far exceeds our ability to act on it, from an interdiction perspective. So, I saw exactly what you're alluding to, which was a shortfall of the resources necessary to interdict. I came back with a much better appreciation of that. Frankly, what I've asked our team to do is to try to look—given all the challenges that we have, and given all the competition for resources, I'm still not convinced that we can't find some innovative ways to address the interdiction. At least, if we took action on just the intelligence and the information that's——

Senator AYOTTE. Right.

General DUNFORD.—currently available——

Senator AYOTTE. Right.

General DUNFORD.—through the Joint Interagency Task Force—and the other thing, Senator, even in the—we have Joint Task Force Bravo. I think you're familiar with them. So, while we've always had, really, a pretty good understanding of what's going on in the air and the sea, and increasingly better today, again, because of both the Interagency and the international cooperation, what I also found was, our ability to see what's going on over land is also much greater than it was.

What you're alluding to is—I do think—and I came back with this—you know, frankly, as something as a priority for me and the staff last week, coincidentally, was to come back and say, okay, we have all this information intelligence. I understand the competition for resources, but we have an imperative to actually do something about this. Frankly—I think you know it, because you've looked at the issue—we—what I've seen the studies say is that about 40 per-

cent of interdiction is kind of where you need to be. In other words, there's other things you have to do, from prevention to treatment and so forth——

Senator AYOTTE. Right.

General DUNFORD.—to deal with the issue. But, if you get the 40 percent interdiction, that's kind of the contribution you can make at the interdiction level. We're probably half of that, or below.

Senator AYOTTE. Or less.

General DUNFORD. My priority—and I'll come to the Secretary with some recommendations—is to try to get us as close to that 40 percent as we can. Again, if nothing else, to try to get us to the point where we're acting in interdicting based on the intelligence and information that we have today.

So, again, not a solution to the problem, but encouraged by what we know. Now we've got to do something about it. Of course, it's not just a DOD issue. The Coast Guard plays a huge role in that.

Senator AYOTTE. Right.

General DUNFORD. Department of Homeland Security and so forth.

Senator AYOTTE. Well, I appreciate hearing you say, General Dunford, you think it should be a priority, based on your visit, because I remember also, when General Kelly was Commander of SOUTHCOM, he had talked to me at length about this, about—that we had the information, and we could see this stuff coming over. We just needed the additional resources to interdict it.

I really appreciate your putting a focus on this, because we are—you know, we need to do the work on the prevention and treatment. We're focusing on that. But, the interdiction would be very significant, because it's so cheap on our streets right now, and that will help drive up the cost. We know that these networks are used to traffic—used by terrorists and others, too. So, it's important for our Homeland security, as well.

General DUNFORD. Mr. Chairman, if I could, one follow-up. The other thing that I came back with is, you know, kind of an imperative to keep our partnership capacity-building efforts in the region going, and funding those adequately, as well, because, you know, clearly, we can't do it all ourselves. We don't want to do it all ourselves. The investment that we make in the ability of others to support the interdiction effort, I think is also an important part of this.

Senator AYOTTE. Great. Thank you.

Chairman MCCAIN. Senator King.

Senator KING. Thank you, Mr. Chairman.

First, I'd like to associate myself with the questions and comments of Senator Sessions. I think the idea of developing a long-range strategy for dealing with the Middle East and violent jihadism is a—is an important project. We can't just *ad hoc* it all the time. This should be comprehensive, it should involve the Muslim world, the Arab countries, and other countries. So, I commend the Senator for bringing that up.

I'd like to go back to the budget and pull back a bit. We're facing a series of challenges. One is a huge debt, now approaching $19 trillion, that we're passing on to our children, that I think is utterly irresponsible. The second is what I call the "interest timebomb." Right now, we're in a Never Never Land of low interest

rates that's very unusual. If interest rates return to 5 percent, kind of average over many years, just interest on that national debt will be almost equal to the entire discretionary budget today, $950 billion, way more than the entire defense budget. Just the increase from 2 percent to 5 percent would almost equal the defense budget. That's money that's got to be paid, and that's an impending disaster out there.

The third fact is that all of our discussions here today and in the other committees about the nondefense discretionary budget, the total of what we're talking about is a little over 20 percent of the total Federal budget. Fifty percent is mandatory expenditures, which is being driven largely by demographics—we're all getting older—and healthcare expenses. Then another 25 to almost 30 percent is tax expenditures, which are rarely discussed, but which now exceed the entire revenues of the discretionary budget, over a trillion dollars a year. So, we're trying to solve a huge problem, looking at only one piece of it. It's as if you had a big problem in your family budget, and you said, "We're going to solve this whole problem just by focusing on our electric bill." That's where we are. If you trim the lines out, we're already at the lowest point in 70 years in defense spending as a percentage of GDP. We're at the lowest point in 70 years as nondefense discretion. We're struggling within this box that was created in 2011 to try to solve a problem that we can't solve within that—within that—the space of that 21 percent of the overall Federal budget.

So, it seems to me that you're doing a mighty job of working within the constraints, but if we don't go back and revisit the decisions of 2011, particularly in light of the reality of the world that we face today, we're facing a long-term catastrophe. I mean, you're a student of long-term Federal budget. Is this an accurate assessment, Mr. Secretary?

Secretary CARTER. It is. I—it's—the—if I say it again this year, I said it at—when I presented the budget last year, when I became Secretary of Defense—that's not something we can solve in Defense, but we observe it.

Senator KING. But, we're trying—we're being forced to try to. That's what bothers——

Secretary CARTER. You're exactly right. You—we're trying to solve an entire problem on the back of discretionary spending. It's not enough. It's not sustainable. Now, there are—all those other parts of the budget have to be in the picture. I understand that. I think that is what is necessary, to have everybody come together behind a budget future. What—one of the things that we're asking for here is stability and relief from those sequestration caps. I recognize——

Senator KING. Well, we've gotten to the point, around here, where 2 years sounds like stability. I mean, we're feeling great when we have a 2-year budget deal.

Let me change the subject slightly. We've talked a lot about the bow wave and the modernization. We're talking about *Ohio*-class submarines, long-range strike bombers, missile upgrades. All of those are what I would call capital expenditures, in the sense that they are 30-, 40-year assets, and yet, in this strange world of Federal budgeting, they're treated as current expenditures. There's no

way we're going to be able to handle those expenditures and do all the other things. Shouldn't we be thinking about them in a separate category? I believe there should be a capital Federal budget, assuming for a moment we could figure out what it is we own. But, we should have a capital budget for long-range investments, like a 40-year *Ohio*-class submarine, as opposed to trying to fund them out of current operating expenses. Is that something you'd consider?

Secretary CARTER. Well, certainly we try to think that way. As we put together budgets 1 year at a time, we prepare budgets 5 years at a time, as you know, even though you only consider budgets 1 year at a time. So, we try to have that long-term perspective. I opened my testimony by saying we did, in this budget, take the long view. That's an important new thrust in this budget, is to look ahead 10, 20, 30 years from now.

Now, in order to do that, you have to be confident that the reasonable resources will be available then. To the specific point about the *Ohio*-class replacement and the strategic forces recapitalization, for example, I've already made the point that, even with sequester relief, there's going to have to be additional——

Senator KING. Right. It just——

Secretary CARTER.—funds——

Senator KING. It just doesn't——

Secretary CARTER.—for that purpose, because it's so large a bill——

Senator KING. Right.

Secretary CARTER.—that we can't afford to have it squeeze out of our other submarine construction or other shipbuilding. We have to take that long-term perspective, I agree with you.

Senator KING. Good.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Cotton.

Senator COTTON. Thank you.

I want to continue along the same vein of questioning here.

General Dunford, anytime your friends in the Navy come to testify about their top priorities, we get a little stoplight chart based on different budget scenarios. No matter the budget scenario, the sea-based nuclear deterrent is always green. Most other things might be yellow or red. Can you tell us why that is?

General DUNFORD. That reflects the priority of the Department to provide an effective and safe nuclear deterrent, survivable nuclear deterrent, which is why that's green. It really does address the most important requirement that we have in the Department, which is to prevent a nuclear war against the United States.

Senator COTTON. Do you know what percentage of the Department's overall budget is spent on our nuclear deterrent—not just sea-based, but all legs of the triad, as well as the infrastructure?

General DUNFORD. Senator, I don't know the percentage that we spend on that.

Senator COTTON. Secretary Carter, you look like you know.

Secretary CARTER. It is, it's about $20 billion a year. It depends on what you include in that, but it's a couple of tens of billions of dollars. It's not an enormous part of our budget, but it is a critical part of our budget.

Senator COTTON. That's a relatively small—4 or 5 percent.

Secretary CARTER. It is. Now, that doesn't count the things that Senator King is talking about, the bills that will come in the future to keep it that way. But, you're—just the—what we're paying in this year for our nuclear deterrent is that.

Senator COTTON. I ask because of the sizable bills coming due to modernize all legs of the triad, as well as the infrastructure. I sometimes hear people say, you know, why do we spend so much money on weapons we never use? My response would be, first, we don't spend that much money on them, in the context of the defense budget. Second, we use our nuclear weapons every single day.

There is a sea-based deterrence fund that was created last year, I believe, in anticipation of the large expense of the *Ohio*-class replacement submarine. Obviously, we also need to upgrade our bomber. That's why we have the B–21 program. There are also land-based and infrastructure modernization that is needed. Rather than having merely a sea-based fund, should we perhaps have a nuclear deterrence fund?

Secretary CARTER. I think that may make sense, certainly for whatever we decide to do with respect to the ICBM force, both as—regard missiles and their land basing. The B–21 bomber, also one could put in that category. I just want to emphasize, we want the B–21 bomber for the nuclear mission and non-nuclear mission. It'll be capable of both. Like our current bomber force, we'll use it for both.

Senator COTTON. Why would you have a sea-based deterrence fund alone, and not a broader nuclear deterrence fund?

Secretary CARTER. I'm agreeing with you that——

Senator COTTON. Okay.

Secretary CARTER.—I think a broader nuclear deterrent fund may be appropriate.

Senator COTTON. I mean, recognize that the B–21, like the B–2 and other aircraft, have dual capabilities, but the foundational capability across all of these systems is the nuclear deterrent. I'm not sure we should have any of these deterrent funds, but, if we do decide that we want to treat our nuclear triad in a special kind of way, then I think we should probably do all three legs of the triad.

Secretary Carter, I want to turn to the South China Sea. You said, 2 weeks ago, that, "China must not pursue militarization in the South China Sea. Specific actions will have specific consequences." What specific actions are you referring to?

Secretary CARTER. The specific actions of China are actions to press territorial claims, not through international legal mechanisms and peaceful mechanisms, but through militarization. That's what the Chinese have been doing in the South China Sea. They're not the only ones, but they're, by far and away, the largest militarizers of features in that region. The kinds of actions we are taking are—and I'll give you some examples of——

Senator COTTON. My next question would be, What are the specific consequences?

Secretary CARTER.—we can go through them more in another setting, but, just to give you some examples. In addition to our own force posture in the region, which, as you know, we've been strengthening for—as part of the rebalance for several years—we're

doing some extra strengthening of that this year. It's detailed in our budget statement. Particularly has to do with increasing the lethality of our platforms out there and their technological capability. But, in addition, one of the other effects that China's behavior is having is, it is driving many of our partners and allies to want to do more with us, give us more access. We will have that in the Philippines. We're doing more with Vietnam, much more with Japan, Australia, India. Not only are we reacting, but the countries in the region are reacting, too. Our relationships with them, accordingly, are blossoming. We're doing much, much more.

Senator COTTON. Yes. Obviously, our relationships are getting much stronger in northeast and southeast Asia because of China's actions. But, in the end, I think some kind of genuine action on our part is going to be necessary; otherwise, they will present us with a fait accompli in the South China Sea.

My time expired. Thank you all. Happy Saint Patrick's Day.

Secretary CARTER. Same to you.

Senator SHAHEEN. Mr. Chairman, I'm going to defer to Senator Manchin, because he has to leave. So, I will give my slot. If you will come back to me after the next turn, I appreciate that.

Chairman MCCAIN. Senator Manchin.

Senator MANCHIN. Senator Shaheen, thank you so much.

Thank you all for your service, and thanks for being here.

Let me just say, either to Secretary Carter, General Dunford, or whatever, I'm concerned about the—Russia's recently announced withdrawal from—the military forces from Syria, saying that they've fulfilled their mission. Putin communicating with President Obama on the Russian military force withdrawal and the next steps required to fully implement a cease-fire, with a goal of advancing political negotiations on a resolution of the conflict in Syria. Then I just have, on—today, I see where the Syrian Kurds plan to declare a federal region in northern Syria territory. I guess I would—asking, Do you anticipate a change in the U.S. military-force role in Syria, based on Russia's military withdrawal? Is Russia claiming success? Has it strengthened their—basically, their swagger, if you will, the political clout in that area?

Secretary CARTER. Well, as I said before, Russia came in wrongheadedly, because they said they were going to fight ISIL, and they didn't. Instead——

Senator MANCHIN. Correct.

Secretary CARTER.—they supported Assad, which prolonged the civil war, fueled the civil war.

Senator MANCHIN. Correct.

Secretary CARTER. So, their effect has been the opposite of what they stated, and certainly the opposite of what is needed. It hasn't had an effect on our prosecution, to get to your—what we're doing in Syria, of our counter-ISIL campaign. It has had the effect, in my judgment, of prolonging the Syrian civil war.

Now, maybe Russia can do what it should do, which is use its influence over the Assad regime to promote the transition. That's what Geneva's about. To get to the question about the Kurds, that's exactly the kind of thing that's being discussed in Geneva. But, the Russian contribution has not been positive. We're watching its withdrawal. I don't know to—how far that will go. But, the Russian

effect was not what they said it was going to be, and it was, as I've said, wrongheaded.

Senator MANCHIN. But, I'm saying that, still, they're—the Kurds, the Syrian Kurds establishing an area, or claiming an area, is not met with—it's being met with resistance from Assad and his regime, correct?

Secretary CARTER. That is correct.

Senator MANCHIN. You're thinking Russia can negotiate that?

Secretary CARTER. No, I don't know that Russia—I—we and others in the region, including the Turks, will have a major role in Geneva about deciding the manner of participation of the Kurds. I'd—so, Russia will play a role in those talks, but we have an important role to play, as well.

I will say, with respect to the Syrian Kurds, that they have proven to be excellent partners of ours on the ground in fighting ISIL. So, we're grateful for that. We intend to continue to do that, recognizing the complexities of their role in the region overall.

Senator MANCHIN. General Dunford, your posture—the statements—describes five strategic challenges: Russia, China, North Korea, Iran, and the violent extremists, of course, of ISIS. I guess I would ask, in your assessment, the greatest threat we're facing from that lineup.

General DUNFORD. Senator, first, I guess I'd say we don't have the luxury of racking and stacking. We have to address each of them in——

Senator MANCHIN. Right.

General DUNFORD.—their own way. What I've said in the past in testimony, and I guess I would restate today, is, the one that has the greatest capability and poses the greatest threat to the United States is Russia, because of its capabilities—its nuclear capability, its cyber capability, and clearly because of some of the things we've seen in its leadership's behavior over the last couple of years.

Senator MANCHIN. What do you make of the kidnapping of the young student in North Korea?

General DUNFORD. You know, I've watched that over the last couple of days, and, you know, you can't help but feel for both him and the family, but I think it's just a reflection of the absolutely irresponsible leadership in North Korea, and it exposes the regime. To those who may not have appreciated what the regime is—that behavior was certainly not a surprise to me, in terms of North Korean regime behavior, and I think that probably many other people who maybe weren't as attentive to it have now seen what North Korea is all about.

Senator MANCHIN. Why do we have Americans still traveling in that area? I mean, why would they even be in the country?

General DUNFORD. I—you know, I—Senator, that's——

Senator MANCHIN. That was a religious, I believe, was it not? A religious——

General DUNFORD. It was a religious group. What I heard this morning is that we probably had some 15,000 people go over to North Korea as tourists over the last several years, and 13 of them have been apprehended. That was a statistic from the news. But, this is clearly not something that the Department of Defense is in-

volved with, and I can assure you that we don't have members of the Department of Defense visiting North Korea.

Senator MANCHIN. Secretary Carter.

Secretary CARTER. The only thing I want to add, if I could, because it's timely, in view of North Korea's threats about provocations, including missile launches, that we stand alert with our missile defense forces, with our allies, the Japanese and the South Koreans. That's a daily task, all sorts of missile defenses as well as our deterrent forces on the DMZ [demilitarized zone] and in South Korea.

I used the phrase "fight tonight," and that's their slogan. Of course, nobody wants that to occur, but the way to make sure it doesn't occur is for us to be ready each and every night. They're some of our most highly ready and capable forces.

Senator MANCHIN. Thank you all. My time is up.

Senator REED [presiding]. On behalf of Chairman McCain, Senator Ernst, please.

Senator ERNST. Thank you, Senator Reed.

Thank you, gentlemen, for being here today.

Yesterday, I joined a bipartisan group of lawmakers to advocate for some incredible women who really do deserve to be honored. They are the Women Airforce Service Pilots, otherwise known as WASPs. Secretary, you know where I'm going with this. It is a travesty that these women, who are pioneers in military aviation, had the honor of having their ashes inurned at Arlington National Cemetery revoked last year during the same year that, historically, you opened up positions that had been previously closed in combat to women. So, I would like to see that addressed. The Pentagon should do the right thing and honor these women by restoring their rights to have their ashes inurned at the National Cemetery. It's my understanding that a waiver can be done for these women to do so. So, I would encourage you to do that. I'd like to see that action taken. They are part of America's Greatest Generation, as well.

So, Secretary Carter and General Dunford, I will submit a record—or a question for the record, and would love to have a forthcoming response from you on this issue. It is something that we are very passionate about in making sure that women are honored, as well.

Senator ERNST. So, first, Secretary Carter, I do continue to remain concerned about the lack of capacity and capability provided to EUCOM [U.S. European Command] in order for it to perform its critical mission of defending our Nation and our allies. Especially as we look at Russian aggression. We've heard a number of members speak on that today.

General Breedlove has come before our committee multiple times stressing the need to enhance our capacity and capability for EUCOM to match the threat of both Russian aggression and transnational terrorism. So, specifically, one area which he raised—this is a top concern of his, and I do share it—it's the lack of support for force protection of our servicemembers, of DOD civilians, and their family members. Considering terrorists have displayed the capability to plan, stage, and execute attacks in western Europe and in recent bombings in Turkey, I would just urge you

to take immediate action to increase our force protection capabilities in the EUCOM AOR [area of responsibility].

So, with that, there is a request to quadruple funding for the European Reassurance Initiative [ERI] in fiscal year 2017. Specifically, Secretary and General Dunford, how will you build capacity and capability to enhance our force protection in that area and EUCOM's warfighting functions to better counter Russia's aggressions as well as transnational terrorism?

Secretary CARTER. Thank you, Senator.

First, I look forward to answering the question on the very first——

Senator ERNST. Thank you. I appreciate it.

Secretary CARTER.—issue. Thank you for that.

Secondly, both the issues you raise with respect to Europe are serious ones that we're adjusting to, and I'll say how.

With respect to Russia and the potential for Russian aggression, outright aggression or the kind of Little Green Men hybrid warfare phenomenon that we saw, that's what—why we're quadrupling the European Reassurance Initiative. To what it pays for, it pays for the rotational presence of forces in Europe, including in border states—states, that is, that border Russia. It provides for increased pre-positioning of heavy equipment there and also in Germany and elsewhere. It provides for doing more exercising and so forth with the Baltic states, with Poland, with Romania, and so forth, and for equipment sets there that our troops fall in on. So, the European Reassurance Initiative, which this year, you're right, we're asking $3.4 billion—it's in our budget—it's extremely important. Basically, we're adjusting to a fact that we haven't had to face for a quarter century, as I said in my statement, namely that we have a Russia that is threatening to—western Europe, and we need a new playbook that goes with that. I regret to say that, but there it is. That's what the European Reassurance Initiative is about.

Now, separately, you're right, in that this is something that General Breedlove and I and General Dunford watch very closely, is the protection of our people. That's a paramount concern to us everywhere, is force protection. Everywhere overseas, but Europe, also. We watch that very carefully, and we're making—taking steps to work with our host countries to increase the protection. We're taking steps, ourselves, with our own people, procedural and technical steps. We can go into them with you in another setting. But, it's extremely important. Our people are protecting us. We owe them protection, as well.

Let me ask the Chairman if he wants to add anything on either of those.

General DUNFORD. The only thing—the exercises, Senator—I mean, it's not only the capabilities we bring, and, of course, it's posturing the forces. We pre-position forces for responsiveness. It's the exercises to assure our allies and partners on a day-to-day basis. But, a number of those exercises are also designed to build the capacity of our European partners, too, so that, collectively——

Senator ERNST. Military to military.

General DUNFORD.—the 28 nations of NATO can be prepared to deal with the Russian threat. I would say that, if we fully leveraged the political, the economic, and the military capabilities of the

28 nations in NATO, it wouldn't be a fair fight, which is exactly what we wouldn't want it to be.

Senator ERNST. Exactly.

Thank you, gentlemen, very much.

Thank you, Mr. Chair.

Senator REED. Thank you.

On behalf of the Chairman, let me recognize Senator Shaheen.

Senator SHAHEEN. Thank you, Mr. Chairman.

Thank you all for your testimony today, and for your service.

I want to follow up on Senator's questions about the European Reassurance Initiative, because, as I'm sure you're both aware, Europe is probably facing more challenges today than it has at any time since the end of World War II. The European Reassurance Initiative is very important in letting them know how committed we are to the peace and security of Europe. I was pleased to see that the President's Budget increased funding for the ERI. Can you talk a little bit more about what the risks are if we don't support additional funding for the Reassurance Initiative? Tell me if you share General Breedlove's view that—I don't think I'm misquoting him, but, when he was before this committee, he talked about the need to put more of our troops in Europe.

Secretary CARTER. Well, the effect of not funding the European Reassurance Initiative would be, physically, that we wouldn't have the funds to put equipment—position equipment there. That's equipment that then forces could fall into in a crisis to reinforce the forces that—it's always been our strategy in Europe, and it would be now, that the—we would have forces there already, but we would fall in with a much greater force—in fact, the full weight, the full might of the U.S. military behind NATO, in the event of a crisis. But, we need the equipment there, and we need our forces to be familiar with the terrain, which is why rotational training is so important. We need them to know how to work with their allies. We need—how to—them to be able to do all the logistics that allow a force to flow quickly. That's the kind of thing that General Breedlove needs to be able to exercise and prepare for. That's our approach, and we need the money in the ERI. That's physically what it does. Politically——

Senator SHAHEEN. Let me——

Secretary CARTER.—it's also important, because——

Senator SHAHEEN. Yes.

Secretary CARTER.—the reassurance is important. The allies want to know that we're there with them and that we see what they see in the behavior of Russia. We do. We want to match our behavior to theirs. Their concern is growing, as well. We're asking them to do more at the same time we're doing more.

Senator SHAHEEN. I had a chance to visit some of the NATO exercises last summer in Latvia, and it was very impressive. You could see that—the synergy that existed because there were a number of countries coming together to work together and to work out the bugs of any future challenges we might face.

Let me switch topics, here, to the issue of energy. I had the opportunity, at the readiness hearing this week, to talk to the—to ask all of the Vice Chiefs of each of the branches about the move towards more energy efficiency and alternative sources of energy

within our military, and the perception that some people have that this is being done because people are being forced to do it, as opposed to because there's—part of our military imperative to improve our strategic readiness, that we have other energy sources that we can count on so that we're not so dependent on fossil fuels, as we have been in the past. Can I ask you all if you can speak to that, why you think this is an important strategic move as we look at our national security?

Secretary CARTER. Well, it is important to our overall national security. Energy security is. We play a part in that. But, everything we do needs to make sense for defense as well as play a part in the overall national energy strategy. But—so, things we do to increase the energy efficiency of engines, develop new engines, very important for our air forces, but also will have a consequence for the—a good consequence for the economy, generally. We—for—spend money in order to save money on facilities, making them more energy efficient. We have a large existing base of buildings, installations, and so forth. We work on making them more energy efficient. We do that for the very reason that it frees up more money in the future that we can invest in real military capability. See, everything we do in the energy sphere has to make sense as a military investment. At the same time, these things are beneficial for the Nation's overall energy strategy. We do try to align them with the Department of Energy and the overall strategy so that we're not doing something that somebody else is already doing, and that we're benefiting from what other people are doing, and they're benefiting from what we're doing. But, it has to make military sense for us.

Senator SHAHEEN. General Dunford, could you speak to the readiness benefit of our being able to take advantage of some of these new technologies?

General DUNFORD. Senator, I could. You know, from my perspective, there's a couple of things about this. One is, if you save money in base operating expenses, that money is available for something else—read readiness. Then there's also an operational flexibility aspect of this, as well. The less reliant you are on fuel, the more operationally flexible you are. That is not only at the level of aircraft and ships and some of the bigger programs that we talk about a lot, but it's also—if you just look at the load of an individual infantryman in batteries, as an example. So, some of the initiatives, we've had to lighten the load. If you look at the weight that our young men and women are carrying right now, it prohibits—it's prohibitive. We've spent a lot of time trying to reduce the load of the individual soldier, sailor, airman, and marine. One of the ways we've been able to do that is simply by renewable energy sources that reduces the weight that they carry in batteries, alone, which is one of the biggest things that an infantryman has to carry.

So, you know, again, I think, from a readiness perspective, you save money with fuel, you're able to reinvest that money. Then, from an operational flexibility perspective, again, both at the platform level and the individual servicemember level, there's a lot of utility to that. But, as the Secretary says, it's got to make sense.

Senator SHAHEEN. Sure.

Thank you all.

Thank you, Mr. Chairman.

Senator REED. On behalf of Chairman McCain, Senator Graham, please.

Senator GRAHAM. Thank you.

Thank you all very much.

The Freedom Caucus, I think, in the House——

Do you want to go?

The Freedom Caucus in the House, I think, has taken a position that the House budget should go back to sequestration levels for this year. General Dunford, what would your response to that position be?

General DUNFORD. My immediate response, Senator, would be, we will have to revise the defense strategy if we go back to sequestration. We will not be able to do what we need to do right now. When I say to revise the strategy, it's important to emphasize, we'll have to revise the ends of our strategy, because we will not be able to protect our interests in the same way that's articulated right now in our national security strategy and our defense strategy.

Senator GRAHAM. What effect would that have on our national security?

General DUNFORD. It would cause us to expose the Nation to risk from those five challenges that the Secretary and I have spoken about today.

Senator GRAHAM. Would you say significant risk?

General DUNFORD. I would say significant risk.

Senator GRAHAM. It would actually put our freedom at risk.

General DUNFORD. It would absolutely affect it.

Senator GRAHAM. Okay. I sent you a letter, and you've given me a very timely response, and I appreciate it, General Dunford, about—some have suggested that we intentionally target civilians in the war on terror, and that we go back to using waterboarding or maybe even more aggressive interrogation techniques. You've given me a good response, which I'll share with the public later. But, I forgot to ask one question. What effect, if any, would this have on the warfighter if we started telling our men and women in uniform to intentionally target civilian noncombatants and engage in techniques such as waterboarding or more extreme forms of interrogation?

General DUNFORD. Well, Senator, what I've said publicly before is that, you know, our men and women—and we ought to be proud of it—when they go to war, they go to war with the values of our Nation. Those kind of activities that you've described, they're inconsistent with the values of our Nation. Quite frankly, I think it would have an adverse effect—as many adverse effects it would have, one of them would be on the morale of the force.

Senator GRAHAM. Yeah.

General DUNFORD. Frankly, they would—you would—what you're suggesting are things that actually aren't legal for them to do anyway.

Senator GRAHAM. Well, I don't think I've ever met a tougher guy than you, and I think it would hurt your morale if you were ordered to kill innocents, noncombatants.

So, Raqqa. Do you see Raqqa falling this year, taken away from ISIL?

General DUNFORD. Senator, we're focused right now on isolating Raqqa, limiting the enemy's freedom of movement. I can't put a timeline on when Raqqa will fall. I can tell you that we're working very closely with indigenous forces on the ground to isolate and then subsequently——

Senator GRAHAM. Do you agree with me the likelihood of Raqqa falling between now and the election is pretty remote?

General DUNFORD. Senator, again, I haven't put a timeline on it.

Senator GRAHAM. Okay. When it came to liberating Fallujah, how many U.S. soldiers or military personnel were involved?

General DUNFORD. Senator, we had 14,000 U.S. personnel that were involved immediately in the operations around Fallujah, but obviously many more in the surrounds that had a isolation effect.

Senator GRAHAM. If they haven't been there, would the outcome have been different?

General DUNFORD. If the——

Senator GRAHAM. If we were not using military—American military personnel to deal with Fallujah.

General DUNFORD. Well, at that time, Senator, we did not have capable indigenous forces. There was not an alternative to United States Forces in Fallujah.

Senator GRAHAM. Compare the indigenous forces in Syria today with indigenous forces that existed at the battle of Fallujah. Are they more capable in Syria than they were in Iraq?

General DUNFORD. Today, the Syrian—I would assess the Syrian Democratic Forces, based on their performance at Shaddadi and other recent operations, are more capable, relative to the threat that exists in Syria, than what we had in Iraq back in 2004——

Senator GRAHAM. Are they——

General DUNFORD.—and 2005.

Senator GRAHAM.—more capable of taking Raqqa than the Iraqis were at taking Fallujah?

General DUNFORD. In 2004 and 2005, I would assess yes.

Senator GRAHAM. Okay. How many Arabs are in the Syrian Democratic Forces?

General DUNFORD. Right now, we have about 10 to 15,000 Syrian Democratic Forces, of which 5,000 are Arabs, and there's an estimated 20 to 30,000 additional reserve Syrian Democratic Forces.

Senator GRAHAM. Is it your testimony that the people we're training inside of Syria are capable of taking Raqqa back from ISIL and holding it?

General DUNFORD. At this time, Senator, no, but that we intend on growing their capabilities over time. I would qualify that by saying that they're also going to require some support from the coalition.

Senator GRAHAM. Okay.

Iran. Post-agreement, is Iran becoming a better actor in the region, or their behavior gotten worse, post-nuclear agreement?

General DUNFORD. Senator, Iran was a malign influence in the region prior to the agreement. Iran remains a malign influence today.

Senator GRAHAM. Do you think Mosul will be in the hands of ISIL by the end of this year?

General DUNFORD. Senator, I don't—similar to Raqqa, I wouldn't put a timeline on when we would secure Mosul. But, again, I would emphasize that operations against Mosul are ongoing——

Senator GRAHAM. Is taking going to be more difficult than what we had to do in Fallujah in 2004 and '05?

General DUNFORD. Significantly more difficult, based on the population and the size of the enemy.

Senator GRAHAM. So, if you take Mosul without 14,000 American military members, does that make it even more significantly different?

General DUNFORD. Senator, it really is a correlation-of-forces issue. Right now, we've identified over 12 brigades of Iraqi Security Forces, additional Peshmerga forces, and we're in the process of generating effective Sunni forces. So, the idea is that we'll isolate Mosul until the conditions are set for those forces to be successful in securing Mosul.

Senator GRAHAM. Finally, between 2016 and 2021, the next 5-year window, we've talked about what's happened since 2011 to now. Generally speaking, do our national security threats—do they maintain at this level, go up, or go down? What can America expect in the next 5 years, in terms of threats? What kind of budget should we have?

General DUNFORD. I think—I would assess, based on the trajectory we see today, I don't see our security challenges decreasing over the next 5 years, Senator, for sure.

Senator GRAHAM. Agree with that, Mr. Secretary?

Secretary CARTER. I do.

Senator GRAHAM. Thank you.

Senator REED. On behalf of Chairman McCain, Senator Nelson.

Senator NELSON. Mr. Secretary, would you give us your advice for that period of time, 2018 to 2022, of being able to put our payloads into space? I'm mainly talking about DOD and intel payloads, in addition to NASA [National Aeronautics Space Administration] payloads and commercial payloads. Would you give us your advice on the question of whether or not we should continue to be able to have access to the RD–180 engine, which is the engine in the first stage of the Atlas V rocket?

Secretary CARTER. I——

Senator NELSON. Until we develop the new one.

Secretary CARTER. I can, Senator. It is reflected in our budget. I know that there are different points of view on how to approach this problem. I think everybody agrees we have to have assured access to space, so we have to have a way to launch our national security payloads into space. Our country's security depends on that.

One way to do that, which is reflected in our budget, is to continue to use the Atlas booster, including a limited but continuing number of RD–180 engines, not withstanding the fact that we don't like the fact that they're made in Russia and we buy them from Russia. That's the approach we recommend, because it is less expensive.

The alternative, which I understand, but we don't recommend in this budget because it costs more, would be, essentially, to use the Delta as a replacement, which is more expensive than is required. If we're forced to do that, it ends up giving us a bill of a billion

dollars, maybe more, which is not a bill we would like to pay. So, it's that simple. We'll get to space. We have to, because our security depends upon it. We are recommending to you a less expensive way but which does, however, cause us to have to hold our nose insofar as the procurement of the RD–180 engine is concerned. I recognize that there's a difference of opinion there, but that's my advice.

Senator NELSON. Can—in your opinion and what you've been advised, can they ramp up the production of enough of the Delta IVs to get all of your payloads into space, even though it's going to cost more?

Secretary CARTER. My understanding is that, yes, that alternative is available—technically available. Obviously, it's much more expensive, which is the reason for the—not recommending it.

Senator NELSON. It's more expensive also because the RD–180 has to be used on the Atlas V for a number of the NASA payloads, including the Americans on the new Boeing Starliner, which is the spacecraft that will take us to and from the International Space Station, along with what we expect the Falcon 9 and its spacecraft, Dragon, but also all of the commercial payloads. So, if you shut down part of that production until we get the new replacement engine and new replacement rocket—because you just can't take a new engine and plug it into the Atlas V—it's going to cost everybody more, including the commercial sector.

Secretary CARTER. I can't speak for NASA or for them, but you're right, the Delta route is more expensive than the Atlas route. It is available. The—and we've made our recommendation. Where we'd like to go in the future, and where we're headed in the future, is a competitive provision of launchers—that's really important, for both cost and quality reasons—and to have two or more competitors from whom we buy launch services. I don't buy their—the pieces of the rocket, or develop them. They do that, and they provide us launch services. That's an efficient and competitive way. That's the route we're going to. But, I realize that there is a difference of opinion about how we get to that destination. We've made our recommendation in our budget submission.

Senator NELSON. Fortunately, that competition has started, because the Falcon 9, SpaceX, has been a very viable competitor. In fact, that competition has brought the cost of the Atlas V down. There's a good example of competition that, in fact, is working.

Let me just conclude by—any comment on our aging nuclear triad and the need for the long-range strike capability.

Secretary CARTER. Yes, just to reinforce that the nuclear deterrent of this country is—it's not in the headlines every day, thank goodness, but it's not in the headlines because it's there, it's the bedrock of our—it's a bedrock capability for our—of our security. We need it for the indefinite future. We intend to have it for the indefinite future. We're going to need to spend the money required to have that.

Of particular concern, I would single out the *Ohio*-class replacement submarine, just to take one example, but a big example, because the Trident submarines are going to age out. They're effective but old submarines. They'll be replaced by the *Ohio*-class replacement. That's a key survivable part of our nuclear deterrent. We have to have it.

You mentioned the bombers. That's one of the reasons why we're seeking to start, and have started, the long-range striker bomber, or B–21 bomber, program. Making sure that we have a safe, secure, and reliable nuclear deterrent for the future is a bedrock responsibility of the Department. We'll need the funding to do that. We have plans to do that.

Senator REED. On behalf of the Chairman, Senator Sullivan, please.

Senator SULLIVAN. Thank you, Mr. Chairman.

Thank you, gentlemen, for your service and your testimony here today.

I particularly appreciate both of you outlining the five strategic threats. I think that's very clear. I think the American people need to hear that. I think Senator Graham's comments about—or his question about how you think those are going to continue is also very important testimony.

You know, those threats in the—and how to counter them, include the aggression of Russia, which, as you know, Mr. Secretary, General Dunford, is not only Europe, but in the Arctic; the ability to "fight tonight" with regard to North Korea, as you mentioned; the ability to continually rebalance our Asia-Pacific force posture in light of our challenges there with China. In light of those serious threats, you may have seen that General Milley recently decided to reverse the Army's earlier decision, made last year, to disband the 425, which, as you know, Mr. Secretary, is the only airborne BCT [brigade combat team] in the Asia-Pacific, the strategic reserve that's very—that would be very involved in any kind of conflict in Korea, the only Arctic BCT that's trained to fight in mountains and extreme cold weather. I've raised this issue a number of times in the committee over the last year. Recently, several combatant commanders mentioned that they were supportive specifically of what General Milley is trying to do, just given how critical these forces are.

So, Mr. Secretary, do you support the Army's recommendation to more effectively posture its forces to best meet the national security threats that you outlined in your testimony, particularly as it relates to the 425 and what General Milley mentioned, I think, a couple of weeks ago?

Secretary CARTER. Well, Senator, for—thank you very much for your interest in this. I—and I had the opportunity, which I appreciate, the other day to discuss this with you.

Senator SULLIVAN. Yes, sir.

Secretary CARTER. Thank you for your leadership with respect to the overall rebalance and also for your State's hosting of forces that are so critical to so many scenarios of possible risk to the United States, as you already said.

With respect to 425, I looked into that after our conversation. I've spoken to General Milley. If he makes that recommendation to me, I want you to know I'm going to approve that.

Senator SULLIVAN. Thank you.

Secretary CARTER. I think that that is an important part of our force posture in the Pacific. I appreciate your calling my attention to it.

Senator SULLIVAN. Thank you. I appreciate that, as well.

Let me get back to the rebalance issue that you mentioned. You know, a lot of us met with you last year in Shangri-la. I think was a—as we—you and I have talked about, at the Defense Ministers meeting out there, an important demonstration of U.S. legislative, executive bipartisan support for that important strategy. I think a number of us are planning on going again, so I think doing that again would be important to show a strong across-the-board American resolve.

Secretary CARTER. Thank you.

Senator SULLIVAN. With regard to the implementation of the strategy that you laid out in your speech last year, which I thought was a very strong speech, you know, we've been asking—a number of us have written the President, have been encouraging—make sure we do—we implement this policy on a routine basis—now I'm talking about the South China Sea and our FONOPS [freedom of navigation operations] there—not only on a routine basis with—but also with allies. But, I'd like you to comment on—and both you and General Dunford—on the opportunities that what's going on out there presents to the United States, from a strategic perspective. More specifically, as you know, Mr. Secretary—and you see it every time you go out to the region—many, many countries, because of what China is actually doing in the South China Sea—many countries are very much being more interested in working with us and drawing closer to the United States. Are there strategic opportunities that we should be looking at, in terms of possible new basing, new training opportunities with the Marines in the Asia-Pacific, clarifying strategic relationships—I think there's a number of questions of what our strategic obligations are with regard to, say, a country like the Philippines, looking at the next challenges—I know that there's some concern on this committee about the Scarborough Shoal—but, what are the opportunities that we have? Because they seem to me—yeah, we have challenges there, but there's also, I think, enormous strategic opportunities. Could you and General Dunford talk to those? Particularly, you know, the idea of new basing arrangements, the idea of new training arrangements. I think that there's a lot we could be doing, and I'd like to hear both of your views on that.

Secretary CARTER. Well, you're absolutely right. I'll start, and then I'll ask the Chairman to chime in, as well.

There are opportunities. They are presenting themselves because countries in the region recognize that their region has had peace and stability for 70 years, and that is what has given them all the opportunity to rise. All the Asian miracles, beginning with Japan, South Korea, Taiwan, Southeast Asia, today India and, yes, China—all of that has occurred in an atmosphere of peace and stability, which they know we have played a pivotal part in. There is a greater demand for partnership with us. Whether you talk about basing—we are discussing with Philippines right now. You may know that their court passed an important milestone recently, which allows—will allow us to do much more with the Philippines. We're doing more—and General Dunford had a key role in this—with Australia, particularly our marine rotations in Australia. Vietnam—who'd have thought, decades ago, Vietnam—we're doing more with Vietnam. We thank you, because the—we have the Mar-

itime Security Initiative funding, which originated in discussions with you, Senator, and other members of the committee. We're grateful for that. We're using that funding. So—and the Japanese, as you probably know, are—have adjusted and amended their practices. They're looking to do more with us—joint patrolling, exercising, and so forth. India—I'll be in India in a short while, continuing to strengthen our relationship with that—an incredibly important country of a billion people and essential geography and a very capable military that wants to partner with us, as well.

So, we do all this in order to keep going the system that has brought prosperity to Asia. We're not seeking to have conflict with China. It's not against anybody. It's part of keeping that system of security intact. We intend to do it. That's what the rebalance is about. But, the good news, as you say, is that it—we're popular there. People——

Senator SULLIVAN. Yeah

Secretary CARTER.—want to work with us.

Let me turn it over to the Chairman.

General DUNFORD. Senator, I guess I'd emphasize what you and the Secretary have alluded to. I've made two trips to the region since I've been in my current assignment. I would tell you that the desire for people to develop stronger bilateral relationships with the United States has probably never been greater. Frankly, with our partners, particularly those with whom we have a treaty obligation, our relationship has probably haven't—never been deeper.

But, when you talk about opportunities, the one thing that we haven't necessarily had in the past, a—multilateral relationships and interoperability associated with conducting everything from humanitarian assistance operations to other operations that may be required in the region, or that multilateralism, in and of itself, serving as a deterrent to those who might want to be destabilizing in the region. So, there is an opportunity. From those relationships then comes the one issue we haven't talked about in great detail, is opportunities for training. Because——

Senator SULLIVAN. Right.

General DUNFORD.—in the Pacific, you know, joint training is required to maintain readiness. We're always looking for opportunities to identify training areas where we can maintain readiness even as we conduct the exercises and engagements with our partners. I think the willingness of our partners to afford us the opportunity to train in their countries, continue to maintain proficiency with live fire, aviation capabilities, those kinds of things, I think will only increase in the future. There's a number of places where we're in contact—Secretary's staff is in contact with a number of countries to enhance our training opportunities and, as the Secretary spoke about, our actual basing opportunities in the region.

So, I would agree with you. I think a view of the common challenges in the Pacific has brought us together in a very positive way and has created all the opportunities you've alluded to.

Senator SULLIVAN. Great. Thank you.

Thank you, Mr. Chairman.

Senator REED. Thank you very much.

On behalf of Chairman McCain, Senator Lee, please.

Senator LEE. Thank you, Mr. Chairman.

Thanks, to all of you, for being here.

Secretary Carter, on December 3rd, just a few months ago, you announced that the military branches would be opening all military occupational specialties, or MOSs, to servicemembers, regardless of gender, on the basis of various provisions in several iterations of the National Defense Authorization Act, on the basis of committee hearings and formal briefings with members and staff. At the time of your decision, you were certainly aware of Congress's interest in being closely consulted on the matter. Nevertheless, in your announcement and in subsequent briefings with Members of Congress, you failed to discuss the legal and practical implications this decision could have on the Selective Service in America. Would—so, my concern is that it seems the Department may have made a policy decision and left up to Congress and the courts to deal with the difficult legal ramifications.

So, I'd like to know, what assessments, Mr. Secretary, has the Department of Defense made to examine how opening all MOSs to female servicemembers will affect the Selective Service Act. What assessments have you made to examine how requiring American women to register for the draft or, alternatively, ending the Selective Service altogether, would affect military readiness, recruitment, retention, and morale?

Secretary CARTER. Well, thank you, Senator. Thank you for that question.

Let me just begin at the beginning. Why did we do this in the first place? The reason to open up all MOSs to females is to make sure that we're able to access what is, after all, 50 percent of the population——

Senator LEE. Right. Understand, I'm——

Secretary CARTER.—for force effectiveness——

Senator LEE.—I'm not expressing concern about that——

Secretary CARTER. Understand.

Senator LEE.—on the merits of that when I'm talking about its implications for the Selective Service.

Secretary CARTER. I do understand. So, that is the action we took. As far as informing the Congress is concerned, we have the implementation plans for that, including everything that is required by law in order for us to do what we need to do.

Separately is the Selective Service system, which is not administered by us and is governed by statute. So, you will have a voice in any implications for that. My own belief about that is twofold. First, it stands to reason that you'll reconsider the Selective Service system and its treatment of females, in view of the Department of Defense's policies and practices with respect to women as well as men.

But, the second thing I'd like to say about—and—about the Selective Service system and the draft, generally, is this. We want to pick our people. We don't want people forced to serve us, and we don't want all the people that are—young people that are in our country. We pick very carefully. In fact, only about—a little bit more than two-thirds of young Americans even meet our basic qualifications. Many of them are, I'm sad to say, obese or have other health issues. A third of them haven't graduated from high school, and we want high school graduates. About 10 percent of

them have criminal records that make it impossible for us to want them. So, we don't want a draft. We don't want people chosen for us. We want to pick people. That's what the All-Volunteer Force is about. That's why the All-Volunteer Force is so excellent. That's why we're constantly trying to make sure we keep up with labor markets and generational trends and so forth, so that we continue to pick and have access to the very best people.

Look at the magnificent people we have now in uniform. I need to make sure that tomorrow and 10 years from now and 20 years from now, we're also able to attract the very best. But, now, and then, we want to pick. We don't have—want to have people picked for us; we want to pick, ourselves.

Senator LEE. Right. Thank you. I appreciate that. I appreciate the sentiment that I think I understand you expressing, which is that any change to the universe of persons subject to the Selective Service registration requirement needs to be made by Congress, with input from the American people, rather than administratively or by the courts.

Secretary CARTER. It's set in law.

Senator LEE. In the—in a long-ranging interview published with The Atlantic, President Obama has expressed his disdain for security freeriders when it comes to allies in Europe and parts of the Middle East. However, your fiscal year 2017 budget calls for a quadrupling of the European Reassurance Initiative, and robust OCO funding for activities in the Middle East. So, how do you, and how does the administration, how does President Obama, reconcile the concerns that President Obama has expressed about some of our allies who are not taking steps to increase their defense spending or who are potentially abusing their relationship with us, their alliance with us, for their own benefit without making corresponding increases to their investment in defense spending?

Secretary CARTER. Well, I'll just say, as Secretary of Defense, I think America needs to lead. I'm happy to have us lead. We have, by far and away, more capability than anybody else. But, we need others to join us and get in the game. You mentioned Europe. We have been urging, very insistently, Europeans to spend more on their own defense. Some are doing what they're supposed to do. I'd, for example, commend the United Kingdom, which has recently increased its percentage of GDP [gross domestic product] and has agreed to stay at what all the NATO countries agreed, which is a minimum of 2 percent. They're not all there yet. Then, as you go around the world with respect to others, allies in the Gulf and so forth, we are looking for people to join us. There, the counter-ISIL coalition, the effort to deter Iranian aggression, that's something we need our security partners to do with us. So, we're prepared to lead. We're willing to lead. But, I think it's fair to turn to our partners and say, "We need you to join us."

Now, my role in that is very specifically—and the Chairman's, as well—to describe for our—let's take the counter-ISIL coalition—what it is we need. So, "Here's what we need. We need some more ISR [intelligence, surveillance, and reconnaissance] help from you. We need some Special Forces from you. We need"—and this is important—"reconstruction funding for places like Ramadi. So, if you don't have any forces, or you don't want to put your forces there,

you can open your wallet. That's needed." We try to give them choices for how they can make a contribution, and lead them in that direction. But, we need people to follow.

I—it's an important part of my job—and I know the Chairman does this well—to talk to our counterparts and say, "We need everybody in the game if we're going to have a peaceful world. We share this world together. We share this future together. You've got to get in the game."

Let me ask the Chairman if he wants to——

General DUNFORD. No, I'd just emphasize what the Secretary said. I think a key part of our responsibility is on a day-to-day basis. I recently went to the region and met with 30 of the chiefs of defense from our coalition partners to encourage their participation. But, one of the things we do very hard is work on where they can make a contribution, and then encourage them to actually do that. I mean, I'd—that's an ongoing process. We're—are we satisfied with where we are? Never.

Senator LEE. Thank you, General Dunford. Thank you, Secretary Carter.

Senator REED. Thank you.

Gentlemen, thank you for your testimony. Thank you for your service.

On behalf of Chairman McCain, let me declare the hearing adjourned.

[Whereupon, at 12:20 p.m., the hearing was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

1. Senator MCCAIN. Secretary Carter, you state that the funding shortfall from the fiscal year 2017 budget request and the fiscal year 2017 topline submitted in the fiscal year 2016 Future Years Defense Program, a difference amounting to approximately $17 billion for national defense, was mitigated by favorable economic assumptions, such as the price of fuel. Where these favorable economic assumptions also applied to the fiscal year 2017 Future Years Defense Program, thus fiscal year 2018 through fiscal year 2021?

Secretary CARTER. Yes, we used the rate of change for inflation and fuel published by the Administration for the fiscal year 2017 through fiscal year 2021 program.

2. Senator MCCAIN. Secretary Carter, if favorable economic assumptions, relative to last year's budget request, was used for the fiscal year 2017 budget and Future Years Defense Program (FYDP), than the fiscal year 2017 FYDP figures should be lower than the fiscal year 2016 FYDP budget levels. However, per page 5 of Chapter 1 of the fiscal year 2017 Defense Budget Overview, with the exception to fiscal year 2021, the FYDP figures are practically identical. What specific items were you able to fund in the fiscal year 2017 FYDP that were not included in last year's FYDP? Why were these items not included in last year's FYDP? How do these items impact the Department's ability to execute the defense strategy, relative to last year's budget request?

Secretary CARTER. The Future Years Defense Program (FYDP) economic assumptions savings have contributed to the Department's ability to provide funding for several emergent programs:

- The fiscal year 2017 budget invests $18 billion over the FYDP to help spur research, develop, test, evaluate, and procure 3rd Offset Strategy capabilities our military will need to deter and if necessary fight and win high-end conflicts in the future. The 3rd Offset Strategy is based on the premise that advances in artificial intelligence and autonomy will allow the Joint Force to develop and operate advanced joint, collaborative human-machine battle networks that synchronize simultaneous operations in space, air, sea, undersea, ground, and cyber domains.

- To ensure enough fighter squadrons are ready to deploy to meet high overseas demand, the Air Force will transition the A–10 fleet two years later than previously planned, enabling a larger near-term force and investment in legacy capabilities.
- The fiscal year 2017 budget supports the Army's Aviation Restructure Initiative by providing $1.1 billion for 52 Apache helicopters, and $1.0 billion for 36 Black Hawk helicopters in fiscal year 2017.
- For the nuclear enterprise, while many systems remain effective, we are entering a period when multiple weapon systems require significant modernization. This drives an increase in the funding required over the FYDP and beyond.
- The *Ohio* Replacement Program is allocated $13.2 billion for development and initial construction over the FYDP.
- The budget allocates $108 million over the FYDP to implement the Joint Interagency Combined Space Operations Center, which will better align joint operations in space across the U.S. Government.
- The Department has assumed responsibility for development, design, security and operation of the background investigations information technology systems for the National Background Investigations Bureau. This will ensure cybersecurity is embedded throughout the process, thereby strengthening protection of federal employees' and contractors' personal information.
- The Department also utilized the economic assumption savings to restore previously planned savings for proposed force structure changes, health care reform, and other efficiency initiatives that Congress has denied.

The fiscal year 2017 funding is constrained by the Bipartisan Budget Act of 2015, but this budget reshapes the Department in order to address current and future operational challenges. The Department's fiscal year 2017 budget and FYDP retains major elements of planned force structure; invests in the future; emphasizes lethality and capability over size; pursues innovative "offset" capabilities and processes; and enables the Joint Force to operate across all domains including cyber. However, increased and predictable funding is needed over the FYDP to sustain this investment in the future and maintain U.S. superiority.

3. Senator McCain. Secretary Carter, in your statement you state "last fall's budget deal set the size of our budget, and with this degree of certainty we focused on changing its shape in fundamental ways—making choices and tradeoffs to adjust to a new strategic era, and seize opportunities for the future." However, this year's budget request seems to promote a very similar force structure and program requirements as previous budgets. In fact, this year's budget still seeks to meet the requirements and strategy as laid out in the Defense Strategic Guidance and the 2014 Quadrennial Defense Review. The target endstrength of the Total Army and Marine Corps has not changed. The total ship requirement has also not changed. The size and shape of the major Air Force procurement programs have also not changed. Thus, in what ways did the Department change the shape of the budget from previous years?

Secretary Carter. The fiscal year (FY) 2017 budget request strikes a prudent balance among the modernization of the Joint Force, its size, and its readiness, and continues to keep faith with servicemembers and their families. The President's Budget (PB) 2017 reflects a defense program that effectively balances the need to meet today's persistent operational demand and to build our readiness and capabilities for full-spectrum warfare. The PB 2017 funding levels will allow the joint force to respond to steady state demand requirements, fulfill strategic obligations, and support the Services' readiness recovery plans. To continue to provide a strong package of pay and benefits for both military and civilians and ensure the Department remains competitive for the best talent, the budget proposes a 1.6 percent basic pay increase for 2017.

Today's security environment is dramatically different from the one the Department has been engaged with for the last 25 years, and it requires new ways of thinking and new ways of acting. The following major changes to the PB 2017 reflect today's security environment:

- The PB 2017 funds intelligence, surveillance and reconnaissance (ISR) support for counterterrorism (CT) that will build to 90 total combat air patrols for combatant commands.
- The budget quadruples last year's request for the European Reassurance Initiative (ERI) to $3.4 billion in fiscal year 2017 to reassure our NATO allies and deter Russian aggression. This funding supports prepositioning additional combat equipment, conducting additional training exercises, and enabling a contin-

uous brigade-size rotation which will ensure we have three Army brigade combat teams in Europe at all times.

- In response to increased threats, the Department is strengthening cyber defenses and increasing options available in case of a cyber-attack. The PB funds $6.7 billion in fiscal year 2017 for defensive and offensive cyberspace operations, capabilities, and cyber strategy.
- The Department is focusing efforts to reduce management headquarters from the fiscal year 2014 level by 25 percent by fiscal year 2020.
- The Department is modernizing the TRICARE health plan to balance the needs of beneficiaries with requirements to maintain military medical readiness by incentivizing care at the military treatment facilities through lower fees and copays, as well as improving access to military care (e.g., timely medical appointments).
- The Department is assuming responsibility ?for development, design, security and operation of the background investigations information technology systems for the National Background Investigations Bureau. This will ensure cybersecurity is embedded throughout the process, thereby strengthening protection of federal employees' and contractors' personal information.
- The PB 2017 will help provide our Army, Marine Corps, and special operations forces with greater lethality to ensure ground forces can deter and, if necessary, fight and win a full-spectrum conflict.
- The fiscal year 2017 budget builds upon investments in last year's budget to help secure U.S. access to space and address space as an operational domain.
- The fiscal year 2017 budget invests $18 billion over the FYDP to help spur research, develop, test, evaluate, and procure 3rd Offset Strategy capabilities our military will need to deter and if necessary fight and win high-end conflicts in the future. The 3rd Offset Strategy is based on the premise that advances in artificial intelligence and autonomy will allow the Joint Force to develop and operate advanced joint, collaborative human-machine battle networks that synchronize simultaneous operations in space, air, sea, undersea, ground, and cyber domains.
- To ensure enough fighter squadrons are ready to deploy to meet high overseas demand, the Air Force will transition the A–10 fleet two years later than previously planned, enabling a larger near-term force and investment in legacy capabilities.
- For the nuclear enterprise, while many of our systems remain effective, we are entering a period when multiple weapon systems require significant modernization. This drives an increase in the funding required over the FYDP and beyond.

The fiscal year 2017 funding is constrained by the Bipartisan Budget Act of 2015, but this budget reshapes the Department in order to address current and future operational challenges. The Department's fiscal year 2017 budget retains major elements of our planned force structure; invests in the future; emphasizes lethality and capability over size; pursues innovative "offset" capabilities and processes; and enables the Joint Force to operate across all domains including cyber. However, increased and predictable funding is needed over the FYDP to sustain this investment in the future and maintain U.S. superiority.

QUESTIONS SUBMITTED BY SENATOR JAMES INHOFE

THREATS VS RESOURCES

4. Senator INHOFE. Secretary Carter and General Dunford, how would you assess the future operations tempo of each of our services based on the assessment that former SecDef Gates made about aggressors, terrorists, revanchists, and expansionists half a world away are always interested in us?

Secretary CARTER. For the foreseeable future, the United States will continue to face the priority challenges from China, Russia, Iran, North Korea, and an enduring counter-terrorism campaign. Operations tempo to address these challenges will likely remain high, whether through continued operations such as the counter-Islamic State in Iraq and the Levant (ISIL) effort, or due to rotations and deployments to reassure allies and partners in key regions.

The fiscal year (FY) 2017 budget reflects the strategic shift in resourcing the Department is undertaking—in the direction of, and in preparation for, the threats we see on the horizon from a reemergence of great power competition. In particular, in this budget the Department emphasizes investments to respond to the concerning coercive actions and military modernization agendas of China and Russia.

The fiscal year 2017 budget submission focuses on a balanced set of investments in capabilities, capacity, readiness, and overall surge ability of the force to deter and, if necessary, prevail in future conflicts. The Department believes that in order to deter such conflict, U.S. Forces must have, and be seen to have, the ability to dominate and prevail against potential adversaries. The Department's modernization priorities for conventional forces, as well as for upgrading the U.S. nuclear deterrent, are the foundation for this deterrent ability.

The Department also will not neglect the forces and skills required to continue our counter-terrorism efforts worldwide. The emergence of ISIL, recent terror attacks, and our continuing efforts in Afghanistan and Iraq are strong reminders that the United States and our global partners will need to continue to wage an enduring counter-terrorism campaign for the foreseeable future.

General DUNFORD. The United States is now confronted with simultaneous challenges. The Department has identified five strategic challenges—Russia, China, North Korea, Iran, and Violent Extremist Organizations—all of whom that present transregional, multi-domain, and multi-functional threats. To meet these challenges the Joint Force will sustain a high level of operations tempo well into the future—particularly regarding our high demand, low density capabilities (e.g. ISR, Integrated Air and Missile Defense). Sustaining this operational tempo over time will degrade our full spectrum readiness and undermine our long-term force modernization efforts.

5. Senator INHOFE. General Dunford, would you agree with the statement regarding our current state of operations 'we have more mission than money, manpower and time'?

General DUNFORD. The Joint Force is facing simultaneous challenges from Russia, China, Iran, North Korea, and violent extremism. Meeting these challenges is straining the force, especially low density, high value assets, and degrading both our readiness and capacity for unexpected contingencies. Although the fiscal year 2017 budget is sufficient to meet the strategy, I am concerned that current resource levels for the Department, even absent sequestration, are insufficient to meet the impending bow-wave of deferred modernization starting in 2019.

6. Senator INHOFE. General Dunford, would you agree that budget constraints have forced each service to prioritize near-term readiness at expense of capacity, capability, modernization, and infrastructure?

General DUNFORD. To the extent possible within the resources provided by the 2015
Bipartisan Budget Act, we have balanced three major areas: investment in high-end capabilities, the capability and capacity to meet current operational demands, and the need to rebuild readiness after an extended period of war. Although the fiscal year 2017 budget is sufficient to meet the strategy, I am concerned that current resource levels for the Department, even absent sequestration, are insufficient to meet the impending bow-wave of deferred modernization starting in 2019.

7. Senator INHOFE. General Dunford, is the current defense budget sufficient to simultaneously rebuild the readiness of each of the services and modernize the force for the future while continuing current operations around the globe?

General DUNFORD. Our budget invests in the capabilities needed to maintain an advantage over adversaries and to transition the Joint Force to full-spectrum readiness. However, this process remains slow and fragile due to current operational demands. We are closely managing how the force is employed to meet current demands. The fiscal year 2017 budget balances investment in high-end capabilities, the capability and capacity to meet current operational demands, and the need to rebuild readiness and is sufficient to meet the strategy. However, I am concerned that current resource levels for the Department, even absent sequestration, are insufficient to meet the impending bow-wave of deferred modernization starting in 2019.

FORCE STRUCTURE AND READINESS

8. Senator INHOFE. All, what is our capacity today to provide additional "surge" forces to respond to a major contingency?

Secretary CARTER and Secretary MCCORD. Recognizing the limits of the current resource-constrained environment, the Department maintains the capacity to surge forces by managing four levers: planning, force management, readiness, and global posture.

In the planning realm, the Department reviews the combatant command's campaign plans to achieve prioritized near-term objectives while balancing risks globally with service readiness recovery. These steady-state plans create the conditions that protect our interests, deter our adversaries, and enhance partner capacity. The Department also reviews and maintains resource-informed contingency plans that enable the combatant commands to respond to a wide-array of contingencies. These plans leverage postured forces and force employment options that provide the President and Secretary with a range of response options that secure U.S. interests and achieve strategic end-states.

Through force management, the Department adjudicates and prioritizes global resource demands and distributes forces accordingly. To meet these demands, the Services have developed and are constantly assessing their force-generation models and sustainment processes.

Finally, the Department's broader push for posture over presence preserves the means through which commands and services can surge into a given theater while managing risk globally and preserving non-deployed readiness.

Together, these four complementary lines of effort are rebalancing the Department's ability to surge to a contingency, manage readiness, and maintain the imperative to remain globally engaged.

General DUNFORD. We have the total capacity to execute the strategy outlined in the 2014 QDR. However, our sustained high operational tempo is eroding readiness and extending the timeline by which forces can be made available to address unexpected contingencies or fulfill combatant commanders' requests.

9. Senator INHOFE. All, given the current and projected threat environment and the increased demands being placed on our force structure, do you believe each of our services sized to meet increased operational requirements? If not, what is the right force structure size for each of your services?

Secretary CARTER. and Secretary MCCORD. Yes, the flexibility provided by last fall's budget deal allowed us to maintain the Department's desired targets across the Future Years Defense Program (FYDP) for end-strength and active-reserve mix for our ground forces. Without the budget deal, sequestration likely would have forced further reductions. Our current force structure allows us to execute our defense strategy with manageable risk, even as it does require us to accept elevated risk in some areas.

The current force is sized to today's threat environment. The Department plans to stabilize the total ground force end-strength by the end of fiscal year 2018 with an Army of 450,000 active-duty soldiers, 335,000 soldiers in the Army National Guard, and 195,000 soldiers in the Army Reserve—comprising 56 total Army brigade combat teams and associated enablers—and a Marine Corps of 182,000 active-duty Marines and 38,500 Marine reservists. The fiscal year 2017 budget request will grow the size, and importantly the capability, of the Navy's battle fleet—providing for 380,900 active-duty and reserve sailors in fiscal year 2017, and an increase from 280 ships at the end of fiscal year 2016 to 308 ships at the end of the FYDP. The budget also supports an Air Force of 491,700 active-duty, reserve, and National Guard airmen—maintaining 55 tactical fighter squadrons over the next five years, and providing sufficient manpower to address high operating tempo and shortfalls in maintenance specialists for both tactical fighters and remotely-piloted aircraft.

Future Joint Force requirements derive from the Department's five ongoing strategic challenges: Russia, China, North Korea, Iran, and terrorism. These challenges are the pacing threats that will inform, over the FYDP and beyond, the Department's force-sizing planning and programming processes.

General DUNFORD. The Services are currently able to provide forces to support the strategy outlined in the 2014 QDR. However, resource constraints and increased day-to-day requirements are eroding readiness and extending the timeline by which forces can be made available to fulfill combatant commanders' requests and respond to emerging requirements. We will continue to closely monitor the security environment to ensure force retains the capacity, capability, and readiness to defend the nation against future challenges.

10. Senator INHOFE. All, what is the impact of delaying modernization on our ability to conduct full spectrum operations?

Secretary CARTER. and Secretary MCCORD. The fiscal year 2017 budget reflects the strategic shift in resourcing the Department is undertaking—in the direction of, and in preparation for, the threats we see on the horizon from a reemergence of great power competition. In particular, in this budget the Department emphasizes the concerning coercive actions and military modernization agendas of China and Russia, who continue to advance military systems that seek to undermine the ad-

vantages that U.S. Forces have enjoyed for decades in gaining access to key regions. They are developing and fielding a range of anti-access/area denial capabilities, including long-range air-, sea-, and land-based missiles, advanced submarines, torpedoes, mines, and cyber and space capabilities.

Major delays in the Department's efforts to modernize U.S. Forces for full-spectrum operations—including to contend with these more high-end threats in contested environments—could jeopardize the Joint Force's future ability to deter conflicts with Russia and China. The fiscal year 2017 budget submission focuses on a balanced set of investments in capabilities, capacity, readiness, and overall surge ability of the force to deter, and if necessary, prevail in conflicts adversaries may choose to initiate through future, aggressive behavior to achieve political ends. The Department believes that in order to deter such conflict, U.S. Forces must have, and be seen to have, the ability to dominate a conflict, should one arise. The Department's modernization priorities for conventional forces, as well as for upgrading the U.S. nuclear deterrent, are the foundation for this deterrent ability.

To maintain and expand current U.S. military advantages and remain competitive into the future, particularly after a 15-year period in which the Joint Force was principally focused on protracted counterinsurgency and stability operations and took risk in capability investments, the Department has to pursue modernization efforts now. The fiscal year 2017 budget emphasizes the development and fielding of a wide range of U.S. capabilities to modernize the force, particularly against counter anti-access/area denial threats, including investments in: our posture in Europe; modernized fighter and attack aircraft; lethality in our undersea force; aggressive research and development efforts; and a range of cross-domain capabilities which strengthen power projection, including cyber, space, precision-guided munitions, stealth, and electronic warfare.

General DUNFORD. Over the last fifteen years we have focused on providing our warfighters the support needed to win in the field. This resulted in deliberate decisions to delay investments in some force modernization. Continuing this delay will adversely affect readiness, degrading our competitive advantage, and impacting our capacity. Taken together, over time these impacts will undermine our capability to conduct full spectrum operations. Although the fiscal year 2017 budget is sufficient to meet the strategy, I am concerned that current resource levels for the Department, even absent sequestration, are insufficient to meet the impending bow-wave of deferred modernization starting in 2019.

11. Senator INHOFE. All, have we created a procurement 'bow wave'—pushing out and flattening procurement of critical modernization programs, all with growing budget demand, because they will not fit into the current budget topline?

Secretary CARTER and Secretary MCCORD. The fiscal year 2017 budget request strikes a prudent balance among the modernization of the Joint Force, its size, and its readiness, and continues to keep faith with servicemembers and their families. The fiscal year 2017 funding is constrained by the Bipartisan Budget Act (BBA) of 2015, but this budget reshapes the Department in order to address current and future operational challenges. The Department's fiscal year 2017 budget retains major elements of planned force structure; invests in the future; emphasizes lethality and capability over size; pursues innovative "offset" capabilities and processes; and enables the Joint Force to operate across all domains including cyber.

To underwrite this ability in the Joint Force, the Department's budget must prioritize capability investments and recovery of the force's readiness while controlling internal cost growth that threatens to erode combat power. It must also develop and maintain a posture of Continental U.S.-based and forward forces that prioritizes deterrence, surge for responsiveness to crises, and the ability to prevail in conflict. Finally, the Department must prioritize investments in and preparation for emerging 21st century threats, including those related to the space and cyberspace, the nuclear enterprise, and power projection in highly contested environments. This focus means sustaining robust investments in science, technology, research, and development in areas most critical to future conflict, including where there is the greatest potential for game-changing advances. It also requires reforms to headquarters, force structure, health care, and infrastructure so that the needed investment in priorities is possible. Lastly, increased and predictable funding is needed over the Future Years Defense Program to sustain this investment in the future and maintain U.S. superiority.

General DUNFORD. Yes, due to lower than planned toplines, we have deferred modernization in favor of near-term readiness and force structure. Although the fiscal year 2017 budget is sufficient to meet the strategy, I am concerned that current resource levels for the Department, even absent sequestration, are insufficient to meet the impending bow-wave of deferred modernization starting in 2019.

DETERRENCE

12. Senator INHOFE. Secretary Carter, do you believe the United States is effectively deterring potential adversaries given the statements above?

Secretary CARTER. Yes, I believe the United States is effectively deterring potential adversaries from directly threatening the United States and our allies. However, we must remain vigilant against the risk that some states may turn to increasingly ambiguous and unconventional threats to our interests. Such approaches necessitate a whole-of-government response when the military instrument is not the appropriate solution.

13. Senator INHOFE. Secretary Carter, what do you think the perception of Russia, China, North Korea and Iran on the United States' capability and willingness to deter their aggressive actions is?

Secretary CARTER. [Deleted.]

14. Senator INHOFE. Secretary Carter, what is the impact our ability to deter by drawing red lines or making statements about taking action but failing to follow through?

Secretary CARTER. The Department of Defense is committed to the defense of the United States and of our allies. All instruments of national power underwrite this commitment and contribute to deterrence and extended deterrence. These instruments include our military forces generally, our forward presence in key areas around the world, and our deep defense cooperation with U.S. allies and partners. It would be a grave miscalculation for any nation to doubt our resolve and threaten U.S. and allied vital interests.

QUESTIONS SUBMITTED BY SENATOR ROGER WICKER

RUSSIAN AGGRESSION

Senator WICKER. Russia's aggression in recent years has led many to believe that the Kremlin is trying to rebuild the Soviet empire. Domestically, President Vladimir Putin has overseen an increasingly repressive and undemocratic regime, where opposition groups are punished and human rights are ignored.

On the world stage, Putin has twice defied the sovereignty of neighboring states, invading Georgia in 2008 and Ukraine two years ago. He has spared no opportunity to rebuke America—either by defending Bashar al-Assad's regime in Syria or harboring U.S. fugitive Edward Snowden.

I believe President Obama's misguided concessions and promises have helped enable Putin's ambitions. In 2009, he and then-Secretary of State Hillary Clinton pursued a fruitless "reset" in bilateral relations despite warnings from experts—and members of this committee—that Russia could not be trusted.

Two years ago, the Department of Defense and Department of State confirmed that Russia had violated the Intermediate-Range Nuclear Forces or "INF" Treaty, a pivotal Cold War pact signed by President Reagan and Soviet leader Mikhail Gorbachev to limit both countries' arsenals. DOD officials have told the press that these violations occurred as late as 2008.

It's abundantly clear to me that Putin will continue to test American and NATO resolve during the remaining year of the Obama Administration. I urge the two of you to offer bold and blunt counsel to the White House on the threats posed by the Russian Bear.

15. Can you highlight to this committee the steps DOD is taking with its NATO Reassurance Initiative to send a clear message about our red-lines in Eastern Europe?

Secretary CARTER. Aggressive Russian actions against U.S. partners and interests continue on multiple fronts. Russia continues to occupy Crimea illegally and to support armed conflict in eastern Ukraine, and has routinely violated its international agreements, notably the Intermediate-Range Nuclear Forces (INF) and Conventional Armed Forces in Europe (CFE) Treaties, as well as the Budapest Memorandum. Russia has also intervened in Syria seemingly to prop up the failed Assad regime, leading to greater civilian suffering and diverting forces on the ground from fighting the Islamic State of Iraq and the Levant (ISIL). The United States has responded to these aggressive acts by reinvigorating cooperation with Allies and partners, supporting Ukraine in the face of such aggressive Russian actions, and investing in prudent defensive capabilities while adjusting the U.S. Force posture in Europe.

The recent submission of the fiscal year 2017 budget significantly increases funding for the European Reassurance Initiative (ERI) to approximately $3.42 billion. This year's request deepens the United States' investment in Europe by funding more rotational U.S. Forces, increased training with our Allies and partners, enhanced the quantity of pre-positioned warfighting gear in countries bordering Russia, and improvements to the requisite supporting infrastructure. ERI is helping to enhance our military readiness and sharpen our focus on the expanding strategic challenges our European Allies and partners continue to face. It is a visible demonstration of the United States' resolve to support North Atlantic Treaty Organization (NATO) assurance measures, bolster the security and capacity of our regional partners, deter and respond to aggressive actions by regional actors, and respond to crises in the region. With Russia's continued aggressive actions in eastern Ukraine and elsewhere, this increased ERI request represents the U.S. firm commitment to the security and territorial integrity of our NATO Allies.

General DUNFORD. U.S. is supporting Ukraine in the face of Russian aggression, and increasing investment in sensible defensive capabilities while adjusting our force posture in Europe. The fiscal year 2017 budget submission significantly increases funding for the European Reassurance Initiative (ERI) to approximately $3.42 billion. With this request, the United States' expands investment in Europe by funding additional rotational U.S. Forces which will enable increased training with our Allies and Partners, increase pre-positioned combat gear in theater, and improve necessary support infrastructure. It is a visible demonstration of the United States' determination to support NATO assurance measures, bolster the security and capacity of our regional partners, deter and respond to aggressive actions from regional actors, and respond to crises in the region. In response to Russia's continual aggression in Ukraine and elsewhere, this increased ERI request signifies our steadfast assurance to our NATO Allies security and territorial integrity.

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

PERFORMANCE OF THE A–10 AGAINST ISIL

16. Senator AYOTTE. This week, the Air Force Vice Chief of Staff said that A–10s are performing "superbly" against ISIL. Secretary Carter, you recently said that the A–10 has been "devastating ISIL from the air." Secretary Carter, what is making the A–10 so effective against ISIL?

Secretary CARTER. Since 26 November 2014, A–10s have executed approximately 12 percent of all C–ISIL air strikes, utilizing precision guided munitions, and occasionally, its onboard 30mm cannon. The A–10 also provides capability to support personnel recovery and combat search and rescue missions for U.S. Central Command. The proximity of A–10 basing at Incirlik Air Base, Turkey enables extended on-station time while lessening the requirement for in-flight refueling.

QUESTIONS SUBMITTED BY SENATOR JONI ERNST

HONORING WOMEN VETERANS

17. Senator ERNST. Do you support reinstating Women Airforce Service Pilots (WASP) eligibility to have their remains inurned at Arlington National Cemetery?

Secretary CARTER. Yes, I honor the service and sacrifice of the women who served as WASPs during World War II. Today, these brave and patriotic women are recognized as "active-duty designees" and afforded veteran status. Although not presently eligible for interment or inurnment at Arlington National Cemetery, I support Congress amending the 1977 law expanding their benefits to include above-ground inurnment at Arlington National Cemetery.

18. Senator ERNST. Do you have the authority to immediately reinstate WASPs eligibility to have their remains inurned at Arlington National Cemetery?

Secretary CARTER. No. As a general matter, I do not have the authority to immediately amend the codified rules on eligibility for interment and inurnment at Arlington National Cemetery, whether for the WASPs or any of the active-duty designees. Amending codified rules requires notice and public comment rulemaking—a process which takes considerable time. As such, I believe the most direct and expedient path to expanding the funeral benefits currently afforded active-duty designees is to amend the 1977 law as contemplated in the bill sponsored by Representative McSally and recently passed by the House. I would add that the Secretary of the Army already has the statutory authorization to consider an individual case-by-

case exception to policy based on an individual's record of accomplishments and service.

19. Senator ERNST. If you do not have the authority to immediately reinstate WASPs eligibility to have their remains inurned at Arlington National Cemetery, do you request legislative action which would immediately reinstate this eligibility?

Secretary CARTER. Yes. Expanding the benefits that Congress has already afforded active-duty designees is best accomplished by amending the 1977 law. I fully support such Congressional action provided the bill is drafted narrowly to reduce impacts on the finite capacity of Arlington National Cemetery to perform above-ground inurnments. Any bill passed by Congress and signed into law by the President would be immediately implemented.

QUESTIONS SUBMITTED BY SENATOR MIKE LEE

SELECTIVE SERVICE

20. Senator LEE. Secretary Carter, what assessments has the Department of Defense conducted to examine how opening all MOS's to female service-members will affect the Selective Service Act, and what assessments have you made to examine how requiring American women to register for the draft, or ending Selective Service, would affect military readiness, recruitment, retention, and morale?

Secretary CARTER. The Department included its analysis of the legal implications of my decision to open all remaining closed occupations and positions with respect to the Military Selective Service Act as part of the December 3, 2015, notification package.

Currently, the Selective Service System process provides a unique source on new, quality leads for each branch of Service to assist in its recruiting efforts. With over 2 million registrants per year, the Department realizes approximately 75,000–80,000 joint leads annually. With the current requirement to register with the Selective Service System, young males are compelled to think about the possibility of military service. No money, no legislation, and no marketing technique can replace this opportunity. Mandatory registration of females may provide similar benefits currently experienced through mandatory registration of males with the Selective Service System.

There is merit in a thorough assessment of the issue of requiring American women to register for the draft, or ending Selective Service, to include a review of the statutes and policies surrounding the current registration process, though this should be part of a much broader national discussion, in which the Department stands ready to participate.

COUNTER-ISIS CAMPAIGN

21. Senator LEE. Last week in the CENTCOM posture hearing, General Austin stated that, following the failure of its first attempt last year, the Department of Defense is seeking to recalibrate its efforts to train and equip a Syrian rebel force by focusing on training "smaller numbers of people that we can train on specific skills." Some of us were skeptical about this initiative from the outset, as we believed that the opposition forces in Syria were much more fragmented than was being assessed.

General Dunford, while I have no doubt that the servicemembers involved in this initiative are the best qualified in the world to lead it and are giving the mission their best effort, the underlying causes that led to the failure of the first program are unlikely to disappear simply because we try to "recalibrate" our approach. If the Department of Defense insists that there has to be some sort of friendly force on the ground in Syria—a premise that is open to debate—why do we not see a push to have regional Sunni powers, such as Turkey and Saudi Arabia, assume the leading role in this initiative?

General DUNFORD. We have explored the possibility of using Turkish and/or Saudi Arabian ground forces, however this option is unlikely to materialize in the foreseeable future. While both partners have proven to be significant contributors to the C–ISIL coalition, their efforts will likely remain focused on other areas. Moreover, tensions with both Russia and the Kurds leave little likelihood that Turkish ground forces in Syria are a viable option.

22. Senator LEE. British Foreign Secretary Phillip Hammond in February stated [QUOTE] "What we have seen over the last weeks is very disturbing evidence of

coordination between Syrian Kurdish forces, the Syrian regime and the Russian Air Force which [is] making us distinctly uneasy about the Kurds' role in all of this."

Secretary Carter, can you confirm whether any of the Kurdish groups who have been receiving assistance or support from the United States are also working with the Russian Government and the Assad regime? Is there any evidence that the United States-backed Kurdish forces and United States-backed Sunni groups in Syria have ever engaged in hostilities against each other?

Secretary CARTER. [Deleted.]

23. Senator LEE. On Monday, Russian President Putin announced that a significant portion of the Russian military will be withdrawing from Syria and that they had accomplished their strategic goals in the country. General Dunford, how much more difficult has Russia's involvement in the region made achieving the U.S. Government's stated goal of an inclusive government in Damascus? Do the Russians consider a partitioned Syria with President Assad left in power in the western part of the country a successful outcome for their strategic interests, and is that the direction toward which events on the ground are leading?

General DUNFORD. I will defer to the State Department to characterize Russia's diplomatic objectives vis-á-vis Assad and whether they are conducive to a lasting peace. Russia's military actions suggest a desire to support Regime advances across Syria, including but not limited to the Alawi heartland, in a way which preserves and protects its strategic basing and military position.

24. Senator LEE. Secretary Carter, how do you assess the effectiveness of other lines of effort being executed by U.S. agencies in the counter-ISIS effort, especially to disrupt the finances and weapons supplies of the terrorist group, and their efforts to bring fighters into and out of the warzone?

Secretary CARTER. The lines of effort in the counter-Islamic State of Iraq and the Levant (ISIL) campaign are all interconnected and work across the departments and agencies of the U.S. Government. Recent strikes against ISIL's finance-related leadership and infrastructure deprived the group of bureaucratic expertise and the raw materials needed to generate revenue and support its terrorist operations. The U.S. Government's combined efforts to weaken ISIL's war-making capacity and to retake significant swaths of ISIL-held territory in Iraq and Syria directly translate into fewer resources available for ISIL to conduct and sustain its operations. In addition, recent U.S. Government efforts have made it increasingly difficult for prospective foreign terrorist fighters to reach ISIL-controlled territory in Iraq and Syria. In many cases, particularly in regard to efforts focused outside Iraq and Syria, law enforcement partners of other countries have the lead. Examples of U.S. interagency-led initiatives include: watchlisting, border security initiatives, Treasury designations, and criminal prosecution. The Department of Defense contributes to U.S. and foreign partner efforts to disrupt the movement of personnel and material to, and within, ISIL-controlled territory through intelligence collection and information sharing, strikes within Iraq and Syria, and extensive collaboration with multiple partners to facilitate disruption operations.

25. Senator LEE. Secretary Carter, what is the overall intention of the Counterterrorism Partnerships Fund (CPF) in the War on Terrorism, and in your assessment, since we are seeing more destabilization in the Middle East than ever before, is the Fund meeting the objectives that you have set out for it?

Secretary CARTER. Yes. The intent of the Counterterrorism Partnerships Fund (CTPF) is to build a network of capable partners to degrade and defeat terrorist threats to the United States, our Allies, and our partners across the U.S. Central Command and U.S. Africa Command areas of responsibility. The CTPF is used to support education, training, equipping, advisory efforts, exercises, intelligence cooperation, and military-to-military engagement in a comprehensive approach to building partner counterterrorism capacity. As a result of CTPF investments, our partners have conducted operations that have contained, disrupted, and degraded groups such as Boko Haram (in the Lake Chad Basin), al Shabaab (in East Africa), and al Qaeda in the Islamic Maghreb. In the Middle East, the CTPF has enabled Jordan and Lebanon to increase the security at their borders with Syria, thus limiting the Islamic State in Iraq and the Levant's destabilizing impact.

FORCE OF THE FUTURE

26. Senator LEE. Secretary Carter, the fiscal year 2017 budget request outlines several initiatives that are deemed to be part of building the "force of the future." Is there a cumulative cost estimate of the financial impact of all these changes on

the Department? I understand there is the longstanding argument of readiness versus retention, but what readiness sacrifices has the Department decided to make and for exactly what gains in retention? What evidence does the Department have to support this vigorous effort?

Secretary CARTER. The reforms captured in Force of the Future (FOTF) represent an investment in maintaining the strongest and most agile fighting force the world has ever known. Our people represent our best competitive advantage in warfare and FOTF examines how we can better attract and retain top talent in the Department of Defense (DOD). It is estimated that reforms approved to date will cost DOD approximately $834 million across the Future Years Defense Program (FYDP). All costs are being taken from existing DOD resources and additional unidentified savings may be garnered as the Department becomes more efficient as a result of better talent management. These are not zero-sum propositions. We can increase the investment we are making in our people and preserve vital readiness funding at the same time. The Military Departments were not asked to reduce readiness dollars in order to fund any of the FOTF initiatives, and most of the funding for fiscal year 2017 will come from funding lines within the Office of the Secretary of Defense.

The FOTF initiatives with the most direct impact on readiness are enhanced maternity and parental leave. New mothers will receive 12 weeks of maternity leave (down from 18 weeks for the Department of the Navy, up from 6 weeks for the other Services), and a legislative proposal has been offered to Congress to extend parental leave for spouses from 10 days to 14 days.

Current productivity needs to be carefully weighed against the long-term readiness of the force, measured in human capital. Currently, women in the military have a 33 percent lower retention rate than men over the first 10 years of Service, constituting an unacceptable loss of talent and undermining our long-term readiness. Using the most conservative private sector return on investment figures, retention rates within the DOD would only have to improve between 2 percent and 3 percent for the DOD to hit a "break-even" point for the new policy. Given the gross discrepancy in retention rates between men and women, there is ample reason to believe we can do better.

The annual impact of the new maternity leave policy across the Department will be comparable to the loss of 630 full time equivalents, or a 0.05 percent increase in non-availability. Once parental and adoptive leave are added, the Joint Force expects a loss of 1,608 full time equivalents, or a 0.12 percent increase in non-availability.

It's important to recognize that these impacts on unit readiness will be quite modest for three reasons. First, the extended leave will be spread across an active component force of 1.3 million people. The projected total increase in non-availability across the force is about 0.12 percent. Second, the extended leave period is months shorter than the Services' non-deployability policies for mothers following pregnancy. In the event of a contingency, these units will have to deploy without these women regardless of changes to maternity leave policy. Third, the Services have personnel management flexibilities that enable them to mitigate unit-level impacts. The Navy's policy of reassigning pregnant women to shore duty, rather than deployable ships, is a Service-level example of flexibilities that are often exercised at much lower unit levels.

27. Senator LEE. Secretary Carter, as has been brought up in this committee already this year, we are seeing significant disruption in the civilian workforce in highly skilled positions at military depots and maintenance facilities because of the time it takes to hire new employees. What is the Department doing, both short term and long term, to address this issue, and why is this not a higher priority in the Force of the Future plans as a pressing readiness concern?

Secretary CARTER. Recruiting and retaining the best talent in our civilian workforce is a key element of the Department's ability to build a strong future force and to maintain our superiority well into the 21st century. The Department has numerous human resources flexibilities at our disposal to attract, recruit, and retain a highly skilled and diverse workforce, and we continuously review our authorities to ensure the right workforce planning and development strategies and flexibilities are in place. We have developed tools and guidance for use by hiring managers, in consultation with Human Resource professionals, to ensure the effective use of these authorities to fill positions with the right candidates as quickly as possible. Force of the Future initiatives seek to leverage these processes, including steps to improve the hiring and on-boarding process, to recruit the best and brightest, and match talent and skill with mission requirements across the entire Department. To that end, modernizing personnel practices is a Force of the Future priority, and the Depart-

ment will continue to study and pursue opportunities to streamline processes and reduce recruitment times.

RANGE MODERNIZATION

28. Senator LEE. General Dunford, do you believe that it should be a priority for the services to be enhancing and protecting their test and training ranges from encroachment and environmental concerns in order for them to be ready for testing and training 5th generation weapons against emerging 21st Century threats? What readiness problems will be incurred by the services if our test and training ranges are not adequately prepared?

General DUNFORD. Our test and training ranges are important national assets supporting weapon system development and readiness of the joint force. We will continue to preserve them to the best of our ability and modernize as fiscally prudent to ensure our systems are tested and our soldiers, sailors, marines and airmen are trained against emerging and realistic 21st century threats.

However, our chief readiness problem is driven by several years of an unstable fiscal environment combined with an extraordinarily high operational tempo.

CHINESE NAVAL AGGRESSION

29. Senator LEE. Secretary Carter, our naval forces, under your orders, have conducted several freedom of navigation patrols through the South China Sea in international waters that are contested by the Chinese Government. As the Chinese Government has recently placed HQ–9 Surface-to-Air Missiles on an island in the South China Sea, do you assess that our freedom of navigation exercises have been successful, or are the Chinese using them to justify further build-up?

Secretary CARTER. Since 1979, the U.S. Freedom of Navigation program has demonstrated non-acquiescence in excessive maritime claims by coastal states all around the world. The program includes both consultations and representation by U.S. diplomats and operational activities by U.S. military forces. Our operations in the South China Sea are routine, lawful, and consistent with the way we operate globally. The objectives of our recent Freedom of Navigation Operations in the South China Sea were to protect the rights, freedoms, and lawful uses of the sea and airspace guaranteed to all countries. These operations were successful in meeting those objectives and directly contributed to supporting and sustaining the principled, rules-based order in the Asia-Pacific region.

China's recent military deployments to disputed features in the South China Sea, including the placement of surface-to-air missiles on Woody Island, are not connected to the conduct of U.S. Freedom of Navigation Operations. China continues to take unilateral actions in an attempt to advance its claims over disputed areas, thus increasing tensions in the region. We have discouraged China and all claimants from taking unilateral actions, and we continue to encourage China to clarify its claims in accordance with international law and to commit to resolving its disputes through the use of peaceful dispute settlement mechanisms, such as arbitration. China's actions are out of step with the aspirations of the region for peace and stability, as expressed in the U.S.-ASEAN Sunnylands Declaration of February 16, 2016. We will continue to take a strong position in coordination with our allies and partners in the region to uphold the principles of international law, and to support unimpeded lawful commerce, freedom of navigation and overflight, and the peaceful resolution of disputes. We believe this rules-based order has been conducive to the peace and prosperity of the Asia-Pacific region.

30. Senator LEE. Secretary Carter, what is the ultimate objective of China's naval activity in the South China Sea and the East China Sea? Are they looking to control or inhibit commercial access and activity in this region, or are they primarily focused on claiming natural resources from the sea and seabed?

Secretary CARTER. [Deleted.]

YEMEN

31. Senator LEE. General Dunford, when General Austin testified before this committee last week, he used the phrase "tactical stalemate" to describe the situation in Yemen. While we have been supporting Saudi forces through intelligence and other tactical means, we have yet to see any success in this tribal-war-turned-failed-state situation. General Austin also noted the United States would support re-establishing the legitimate government in Yemen. What kinds of resources would this require of the already-heavily engaged forces in this region?

General DUNFORD. Presently, it is hard to accurately speculate what resources would be required to support a new Yemeni Government. However, military force

alone cannot reestablish a legitimate government in Yemen. Long term peace will require a political resolution between the various competing actors inside Yemen.

AFGHANISTAN

32. Senator LEE. General Dunford, The funding request for operations in Afghanistan is based upon projected troop draw-down levels. As you know, there has been discussion of a residual U.S. Force remaining longer than anticipated. If additional regional security concerns were to emerge in the future that demand more forces, or if the next president of the United States were to decide to leave more forces in Afghanistan longer, what would this do to the budget request and what the DOD had planned for? Would we be prepared for this? Would we need emergency funding?

General DUNFORD. Our fiscal year 2017 budget request includes adequate funding to support our commitment to the mission in Afghanistan. Specifically, the request supports an average deployed troop strength of 6,217 based on the projected drawdown of forces from 9,800 to 5,500 at the end of the first quarter. If additional regional security concerns emerge in the future that could be addressed with higher troop levels, we will be prepared to recommend appropriate military options and their associated incremental costs.

HEALTHCARE:

33. Senator LEE. Secretary Carter, with regard to the reform proposal included for TRICARE, it is my understanding that the Department intends to switch to a two-path healthcare option, with an HMO and PPO option. What is the impetus for deciding to shift to a two-path option at this time?

Secretary CARTER. While our proposal is not dramatically different from our current TRICARE offering that includes two main plans, TRICARE PRIME and TRICARE STANDARD/EXTRA, there are some important distinctions. The following are attributes and enhancements:

- Our proposal economically incentivizes use of the Military Treatment Facilities to a greater extent to make maximum use of existing capacity, reduce taxpayer costs, and provide the workload necessary to maintain the clinical skills of our medical providers.
- One of our two proposed plans, TRICARE Select, is the HMO option, and is very similar to TRICARE Prime with the exception of different co-pays for primary vs. specialty care.
- The second of our two proposed plans, TRICARE Choice, will transform TRICARE STANDARD/EXTRA into a modern PPO. Under Choice, the in-network care has fixed copays with no deductible. This is an important enhancement that means beneficiaries will know up front what their out of pocket costs will be. Beneficiaries will not be required to wait for the claim to be processed to find out how much they owe the provider.

34. Senator LEE. Secretary Carter, I know the Military Compensation and Retirement Modernization Commission (MCRMC) has recommended establishing a new DOD health program that offers a selection of commercial insurance plans through OPM, similar to the Federal Employee Health Benefit Program. Considering that there are issues surrounding OPM and the DOD working effectively on joint activities, such as civilian hiring and securing personnel information, why would the DOD want to share this new healthcare system with OPM instead of establishing a system over which DOD has control?

Secretary CARTER. As you know, the Department of Defense non-concurred with the Military Compensation and Retirement Modernization Commission's (MCRMC) recommendation to commercialize the military health benefit. The reasons for our non-concurrence included a concern that we would drive care away from our Military Treatment Facilities which are important readiness training platforms for our providers. Based on our analysis, the MCRMC recommendation would have substantially increased costs for both the beneficiary and the Department. Given these substantial impediments to implementing the MCRMC's recommendations, we did not further analyze the viability of a relationship with Office of Personnel Managment.

EXCESS ICBMS

35. Senator LEE. Secretary Carter, I have been in discussions with the Air Force about the potential of allowing the service under certain conditions to sell spare ICBM motors to private sector companies to be refurbished and used for commercial space launch. This would both save the Air Force funding in storing these ICBMs

and allow them to make money in selling them off. Would the Department of Defense be supportive of this policy change?

Secretary CARTER. The Department believes it is appropriate to consider leveraging the considerable investment that the American taxpayer has made in developing, manufacturing, and maintaining these motors. However, in doing so, we must not put the small launch market at risk. We should study the issue carefully to determine if the engines could be sold to commercial industry at a reasonable price and in reasonable numbers that do not provide an unfair competitive advantage to the recipient. Selling excess motors would recoup some of the investment that the taxpayers have made, rather than waiting until the motors become unusable and have to be destroyed.

The Department absolutely understands and values the health of our launch industrial base, and we are encouraged by the industry's innovation and investment. We want to encourage this vibrant market, and any policy proposal to make the intercontinental ballistic missile engines available should take the long-term health of the small launch segment into account.

COUNTER-TERRORISM WEAPONS SYSTEMS

36. Senator LEE. Secretary Carter, the United States is engaged in equipping and financing the sale of highly-technological, fourth and fifth generation fixed and rotary winged aircraft to Middle Eastern partners for counter-terrorism efforts. While they are able to execute the missions assigned to them, such missions could also be accomplished by low-cost, low-maintenance aircraft, especially against adversaries that do not have advanced surface-to-air capabilities. For example, the UAE has a contract for modified Air-Tractor 802 airplanes outfitted for low-intensity conflict usage. How is the Department of Defense and our partner nations working to find lower-cost equipment solutions for low-intensity conflicts and special forces use where higher-end weaponry may not be necessary?

Secretary CARTER. Title 10 train-and-equip authorities, such as section 2282, allow the Department to tailor programs uniquely designed for counter-terrorism purposes. The Department works with interagency counterparts to develop programs to equip partners with the proper systems tailored for the level of threat and the capacity of the partner to absorb, employ, and sustain new capabilities. Through this process, and with Secretary of State concurrence, the Department has funded numerous low-cost, low-tech solutions in the U.S. Central Command and U.S. Africa Command regions, such equipping partners with Air-Tractor 802, Cessna C208, and UH–1 Huey II aircraft and the Raven and Scan Eagle unmanned aerial systems.

QUESTIONS SUBMITTED BY SENATOR CLAIRE MCCASKILL

HEADQUARTERS REFORM

Senator MCCASKILL. There is ongoing discussion on reducing headquarters size and right shaping it for the future. The Armed Services Committee has received testimony that the current construct of staff for the Office of the Secretary of Defense and a parallel Joint Staff creates, in some instances, unnecessary duplication of work.

37. Secretary Carter, have you identified overlap in the duties and responsibilities of the OSD and the Joint staff?

Secretary CARTER. We have identified a number of areas of potential overlap. For example, both the Office of the Secretary of Defense (OSD) and the Joint Staff have intelligence offices. Both OSD and the Joint Staff have logistics offices. Both OSD and the Joint Staff have offices working on military personnel issues. Both OSD and the Joint Staff have regionally-focused offices to address policy and plans in critical areas of the world.

These areas of potential overlap are not necessarily inappropriate: we need capability on both the civilian and the military side to ensure that we can preserve both civilian control over the military and the ability of our senior offices to provide objective military advice. If our OSD and Joint Staff offices work together as they should, this binocular vision can produce better advice for senior leaders.

What concerns me is that in some cases our civilian and military offices may not appropriately coordinate their efforts, so that we could have two staffs performing the same work and creating redundant work products. In that case, the work of the two offices would be not only potentially overlapping, but actually redundant. In an era of tight budgets, we can't afford that.

38. Senator MCCASKILL. Secretary Carter, if you have identified overlap, do you assess that it is creating unnecessary duplication of effort?

Secretary CARTER. The Department is currently reviewing areas of potential overlap to determine whether they are creating unnecessary duplication of effort.

39. Senator MCCASKILL. General Dunford, have you identified overlap in the duties and responsibilities of the OSD and the Joint staff?

General DUNFORD. Currently, work is underway to determine which overlaps add value to Department processes and which overlaps are redundant.

40. Senator MCCASKILL. General Dunford, if you have identified overlap, do you assess that it is creating unnecessary duplication of effort?

General DUNFORD. The short answer is yes, both within the Joint Staff and between the Joint Staff and OSD. However, determining the added value is challenging. The ideal way forward is to rationalize and reduce staffing through a multi-year, sustained and methodical review of processes, organization, and functions within each community of interest.

SYRIA TRAIN AND EQUIP

41. Senator MCCASKILL. General Dunford, during General Austin's testimony on March 8th he discussed a new effort to train and equip Syrian forces. The method he described was a "train-the-trainer" model designed to train volunteers and get them back into the fight more quickly. What safeguards will be in place to ensure that we will be training and equipping individuals whose interests align with ours?

General DUNFORD. We identify groups of individuals who share a common goal of combating ISIL and focus on selecting groups whose regions are threatened by ISIL. In selecting personnel to receive training, we utilize vetting procedures that include background checks, social media checks, and physical searches. Coupled with this vetting, U.S., Coalition, and host nation partners monitor the equipment we provide to prevent its misuse or diversion from its intended purpose.

QUESTIONS SUBMITTED BY SENATOR JEANNE SHAHEEN

REGENERATIVE MEDICINE

42. Senator SHAHEEN. I noted with interest the recent Manufacturing Innovation Institute request for information (RFI) from the Air Force Research Laboratory (AFRL). I have been a strong supporter of strengthening advanced manufacturing in New Hampshire and around the country and applaud this step in support of the President's manufacturing initiatives. While there are several possible focus areas noted in the RFI, Bioengineering for Regenerative Medicine looks especially promising. It's an area where there is significant discussion among research universities and R&D companies in my state and I would encourage you to explore this topic fully. Secretary Carter, what are your thoughts this topic and what is the selection process for these Manufacturing Institutes?

Secretary CARTER. Bioengineering for Regenerative Medicine is also an area of interest for the Department. The Department is currently reviewing information collected from the request for information (RFI) and recent workshops held on the areas of interest listed in the RFI. This information will be used to select the technology areas for future DOD-led Manufacturing Innovation Institutes.

NANOTUBE TECHNOLOGY

43. Senator SHAHEEN. Secretary Carter, you have been a strong supporter of utilizing advanced technology to ensure our military maintains its superiority over our adversaries. For example, in 2010, you signed a presidential memorandum citing carbon nanotubes as a national security priority. Do you still believe the development of carbon nanotubes is priority?

Secretary CARTER. Yes, the development of carbon nanotubes is still a priority for the Department. The Department has invested $25 million in Defense Production Act Title III funding over the last six years to develop an economically viable, technologically competitive capability in this area.

44. Senator SHAHEEN. Secretary Carter, how is DOD leveraging DPA Title III funds and the Manufacturing Technology Program to develop carbon nanotube technology and support the industrial base?

Secretary CARTER. A recent Defense Production Act Title III (DPA Title III) project established the infrastructure for the world's first industrial scale manufac-

turing facility producing carbon nanotube (CNT) yarn, sheet, tape, and slurry materials. This facility is also producing CNT Electro-Static Discharge/Electro-Magnetic Interference shielding, which has achieved a Technology Readiness Level (TRL) of 8/9 for spacecraft, while CNT heaters, data cables, and enhanced soft and hard ceramic armor have all achieved TRL 6.

DPA Title III funding of $24.76 million for this project was augmented by $9.21 million of contractor's cost share. The contract was completed in February 2016. Based on the performance of current CNT materials developed through this DPA Title III investment, the Air Force Manufacturing Technology Program has decided to invest $4.1 million in a project to enhance the performance of commercial quantity CNT for next-generation wiring applications in Space and Naval applications.

INTERMISSION PROGRAM

45. Senator SHAHEEN. Secretary Carter, the career intermission program gives more flexibility for servicemembers to take a sabbatical-type leave of absence. Do you think programs like this help retain more servicemembers?

Secretary CARTER. Yes. The Career Intermission Pilot Program has been a useful tool for retention, as it affords our servicemembers more flexibility to pursue personal or professional growth outside their military service while providing a mechanism for their seamless return to Active Duty. Allowing our servicemembers the opportunity to take a sabbatical-type leave of absence for personal reasons assists the Department in retaining personnel with valuable experience and training that might otherwise be lost by permanent separation. Since the pilot program was authorized in 2009, there have been several common reasons for servicemembers requesting to participate. These have included: completing their education, starting a family, aligning tours with a military spouse, and caring for family members.

46. Senator SHAHEEN. Secretary Carter, do you support making the career intermission program permanent?

Secretary CARTER. Yes, I do support making the Career Intermission Pilot Program a permanent program. By allowing our servicemembers the opportunity to take an intermission from service during their careers, with a guaranteed return to Active Duty, both the Services and the members benefit. The servicemembers are able to tend to personal needs or desires and our Services have another tool that may be used to retain servicemembers in whom we have invested valuable training and who have tremendous experience.

QUESTIONS SUBMITTED BY SENATOR KIRSTEN GILLIBRAND

COMBAT INTEGRATION

47. Senator GILLIBRAND. Secretary Carter, I strongly support your decision to open all military positions, including combat arms, to any individual capable of meeting the occupational standard. Regardless of gender, we want the right people in the right positions, and to ensure they are successful once in these positions. You recently approved the services' and SOCOM's implementation plans. Are you confident the implementation plans the services submitted to you are adequate to the task?

Secretary CARTER. Yes, the Services' and Special Operations Command's implementation plans clearly demonstrate a commitment to the monitoring, assessment, and in-stride adjustments that will enable sustainable success.

48. Senator GILLIBRAND. Secretary Carter, what kind of oversight do you plan to do to ensure that the plans are successful?

Secretary CARTER. The Deputy Secretary of Defense and Vice Chairman of the Joint Chiefs of Staff are co-chairing an Implementation Work Group to oversee implementation and ensure the Services and Special Operations Command continue to communicate and share best practices, as they have over the past three years since rescission of the 1994 Direct Ground Combat Definition and Assignment Rule. Additionally, the Services and Special Operations Command will submit annual implementation assessments through the Chairman of the Joint Chiefs of Staff and the Under Secretary of Defense for Personnel and Readiness detailing how each is addressing my implementation tenets.

49. Senator GILLIBRAND. Secretary Carter, how will you work toward maximizing success of their plans, and have you set milestones?

Secretary CARTER. On March 9, 2016, I approved the implementation plans submitted by the Services and Special Operations Command in January 2016, following a thorough review by the Implementation Work Group, co-chaired by the Deputy Secretary of Defense and Vice Chairman of the Joint Chiefs of Staff. Each of the Services and Special Operations Command established internal milestones to monitor and measure implementation, and each will provide an annual assessment to me addressing my seven implementation tenets.

50. Senator GILLIBRAND. General Dunford, are you encountering negative perceptions of full integration at the tactical levels of command, and if so, what forms of education and training are you implementing to address them?

General DUNFORD. Training and educating the forces are a Service responsibility and I am confident the Services are moving forward with full integration.

51. Senator GILLIBRAND. Secretary Carter, are the services developing tests at the recruit stage to better predict outcomes for entry level applicants seeking accession into ground combat arms?

Secretary CARTER. Yes, the Services are working to improve the match between entry-level applicants for enlistment and job requirements. Currently, the Services use the Armed Services Vocational Aptitude Battery (ASVAB) to identify those individuals with the cognitive skills and aptitudes to be successful in entry-level military training on the job. The ASVAB has been proven to be a robust predictor of training and job performance, but not as good for predicting non-cognitive aspects of performance (e.g., motivation, attrition), which are better predicted by temperament or personality measures. The Services are now developing instruments to measure personality traits that predict attrition, such as the Army's Tailored Adaptive Personality Assessment System. The Navy is also developing a non-cognitive instrument to improve the match between a sailor's personality traits and interests with job requirements. Additionally, the Services are developing physical predictor and screening tests for physically demanding military occupational specialties. For example, the Army's Occupational Physical Assessment Test and the Marine Corps' Ground Combat Arms Initial Strength Test will allow the Army and Marine Corps to select servicemembers who are capable of performing tasks associated with physically demanding military occupational specialties.

52. Senator GILLIBRAND. General Dunford, the special operations community broke ground years ago with creatively-designed, pre-selection orientation courses that better predict and ensure candidate success and reduce rates of injury, all prior to accession into the field; is there a lesson the services can draw from these courses in identifying and preparing the most-qualified servicewomen for combat arms?

General DUNFORD. The benefits of these practices are not gender specific, and Services will leverage appropriate resources, to include those lessons from the SOF community, to successfully integrate servicewomen into combat arms.

Supporting Information: The focus of SOF pre-selection orientation courses is to improve the success rate of candidates in specialized training programs. SOF Service Components have identified specific courses of study and physical training regimens that better prepare candidates for their specific training requirements. During the recruiting process, the Services also administer screening tests to assess the potential of recruits to meet the physical requirements of basic and technical training. Both SOF and Service screening reduces the rate of injury and increases the probability that a recruit will complete training.

53. Senator GILLIBRAND. Secretary Carter, how can we ensure long-term job satisfaction and retention of servicewomen in these roles?

Secretary CARTER. The Department agrees that long-term job satisfaction and retention are key components of the All-Volunteer Force; however, we do not make a distinction with respect to men or women. Our aim is retain the highest quality servicemembers regardless of their gender.

The Department does not prescribe specific policies for the Services to follow in promoting job satisfaction and retaining their personnel. Each Service has its own retention policies and each offers many challenging, yet rewarding assignments for its members.

The Services all seek to provide a positive climate for their members and use a variety of tools to encourage retention. Common retention options include selective retention bonuses, duty station preferences, assignment preferences, and additional education opportunities. These tools vary, whether they are used often depends on what motivates the individual servicemember's decision to remain in uniform.

54. Senator GILLIBRAND. General Dunford, before he retired, then SOUTHCOM Commander General John Kelly raised concerns that lowering standards was the only way to ensure that women became infantry, SEALs or Rangers in "real numbers." That position has been vehemently contested by the Service Chiefs of the Army, Navy, and Air Force, as well as the commander of SOCOM, yet General Kelly's comments represent prevalent views in combat units, particularly in the Marine Corps. How do you as Chairman plan to ensure that integration is successful?

General DUNFORD. All standards have been validated as gender-neutral and operationally relevant. There are no plans to lower any standards. The Services and Special Operations Command will submit annual assessments regarding full implementation of their progress through my office to the Secretary of Defense.

55. Senator GILLIBRAND. General Dunford, how do you plan to deal with these views?

General DUNFORD. We must ensure our Armed Forces are trained and ready to meet mission requirements. As Chairman of the Joint Chiefs of Staff, I will continue to consult with the Joint Chiefs and provide my best military advice to the Secretary.

56. Senator GILLIBRAND. General Dunford, do you plan to allow the lowering of standards?

General DUNFORD. The Service Chiefs have repeatedly stated that they have no plans to lower standards.

57. Senator GILLIBRAND. General Dunford, a 2015 RAND study titled Implications of Integrating Women into the Marine Corps Infantry, commissioned by the Marine Corps itself, identified integrated training as an important step to integrating women into combat positions. Despite this study, I understand the Marine Corps will continue to train men and women separately at the Recruit Depots at Parris Island and San Diego, and Officer Candidate classes at Quantico. I also understand the Marine Corps integration plan includes assigning women to combat units in cohorts rather than as individually-assigned personnel. Are there any plans to fully integrate all levels of training? Why or why not?

General DUNFORD. Training and educating the forces is a Service responsibility. They've submitted their plans to the Secretary of Defense, and his 9 March 2016 memo approved their plans and gave them the go-ahead to begin integration. I know it is the Secretary's intent that the Services will continuously learn from their experiences and adjust the plans when appropriate to ensure we have the most combat-ready forces to defend our nation.

58. Senator GILLIBRAND. General Dunford, what size would those cohorts be, and what will you do if only one woman passes an MOS school?

General DUNFORD. This is a Service issue, and I have forwarded your question for Service response.

59. Senator GILLIBRAND. General Dunford, the positions opened to female airmen and sailors represented only a minority of the Air Force's and Navy's occupational specialties, and for the most part were concentrated within those services' special operations components. Therefore, this will be a less substantial change for the majority of sailors and airmen compared to other servicemembers. How do you think those services' experiences might differ during the execution phases of their respective implementation plans from the Army and Marine Corps, which have much higher proportions of ground combat arms?

General DUNFORD. It is the Secretary's intent that the Services continuously learn from their experiences and adjust the plans when appropriate to ensure we have the most combat-ready forces to defend our nation.

60. Senator GILLIBRAND. General Dunford, what lessons, if any, can the Marine Corps and Army learn from the experiences of the Navy and Air Force?

General DUNFORD. It is too early in the integration process to draw conclusions. The Services will continue to share information and best practices as they execute their plans.

MILITARY MUSEUMS

61. Senator GILLIBRAND. Secretary Carter, in April 2014, the Department of Defense released its fiscal year 2013 Report to Congress on Operation and Financial Support for Military Museums. This report stated that DOD spent $91.1 million in

fiscal year 2013 on 87 museums. The report was then discontinued. How much did DOD spend on museums in fiscal year 2014, fiscal year 2015, and fiscal year 2016?

Secretary CARTER. In fiscal years 2014 and 2015, the Department of Defense (DOD) invested approximately $103.5 million and approximately $119.0 million respectively, in appropriated funds for 83 military museums. For fiscal year 2016, the Department plans to expend approximately $92 million in appropriated funds for 82 military museums.

The variances in appropriated funding allocated to support the museums from fiscal year 2013 to fiscal year 2016 are due to construction cost, divesting museums, an improved management approach, or through the consolidation of museums across the military Services.

Military Component	FY 2013 # of Museums / Funding Totals (M)	FY 2014 # of Museums / Funding Totals (M)	FY 2015 # of Museums / Funding Totals (M)	FY 2016 # of Museums / Funding Totals (M)	Funding Delta (FY 2013 & FY 2016) (M)
Army	56 / $36.6	57 / $47.1	57 / $64.1	56 / $34.1	-$2.5
Navy	11 / $16.3	9 / $18.4	9 / $12.8	9 / $14.1	-$2.2
Marine Corps	5 / $14.6	5 / $17.9	5 / $20.0	5 / $22.4	$7.8
Air Force	13 / $17.2	12 / $20.1	12 / $22.1	12 / $21.4	$4.2
Total # of Museums	85	83	83	82	
Appropriated Funding	$84.7	$103.5	$119.0	$92.0	

While DOD no longer routinely reports these figures, these estimates are based on appropriated funds that the Military Services and Agencies invest in military museums.

62. Senator GILLIBRAND. Secretary Carter, to what extent do these museums supported by DOD focus on women servicemembers and issues related to women in service?

Secretary CARTER. The Department of Defense (DOD) is committed to focusing on women in service by telling the story of and accurately reflecting the significant contributions of women servicemembers through our military museums. Some of the military museums fully integrate the impact and reach of women servicemembers into their exhibits on campaigns and military history, while other military museums have focused exhibits, tours, and educational outreach efforts dedicated to women in service.

Notably, military museums have proactively created large and extensive collections of artifacts, exhibits, and programs that document and teach our servicemembers and the American public about the critical contribution women and women servicemembers have made to our military and the nation. Whether it is the dedicated Women's Museum at Fort Lee, traveling exhibits each March that celebrate women's history month, or special lectures, galleries, symposia, artifacts, and exhibit narrations by and for women servicemembers across the military museum portfolio, the DOD depends on and is extremely proud of our women servicemembers. Highlighting women servicemembers and issues central to their success and challenges is at the very core of our military museum's missions.

Army: The Army has 56 museums and all of them contain historical content relating to women in service or women who have supported the Army throughout its 241 year history. The U.S. Army Women's Museum, located at Fort Lee, Virginia, is the only museum of its kind in the world dedicated to telling the story of women's contributions to the Army. Of all the military Services, the Army is the only one to have such a museum. Nevertheless, because the history of women in all branches of the Armed Forces overlaps, the museum has supported the Navy, Coast Guard, Air Force and other nations' efforts to share the story of military women.

Navy: The Navy has 9 museums and all of them provide exhibits showcasing the roles and contributions of women in naval services. Of the Navy's 9 museums, 6 have dedicated exhibits showcasing women in service. All of the Navy's museums display a six-panel "Women in the Navy" exhibit each March in conjunction with Women's History Month. Additionally, all Navy museums regularly host military ceremonies for female servicemembers, including promotions, retirements and changes-of-command.

Marine Corps: There is no single exhibition that highlights gender differences within the Marine Corps; instead, the topic is included throughout the galleries. The National Museum of the Marine Corps and the command museums integrate the story of female Marines throughout its galleries, starting with WWI.

Air Force: The National Museum of the United States Air Force and 11 field museums hold historically significant items for preservation and study to tell the Air Force story. These museums discuss women as part of the diversity of the Air Force, its operation, culture, and overall experience.

QUESTIONS SUBMITTED BY SENATOR JOE DONNELLY

MENTAL HEALTH

63. Senator DONNELLY. Secretary Carter, please provide an update on implementation of section 701 of the *Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015* (P.L. 113–291).

Secretary CARTER. The Department of Defense (DOD) provides person-to-person Mental Health Assessments (MHA) for each servicemember deployed in connection with a contingency operation, as required in section 1074(m) of title 10, United States Code and in accordance with DOD Instruction (DODI) 6490.12, "Mental Health Assessments for Service Members Deployed in Connection with a Contingency Operation." DODI 6490.12 is being amended to incorporate the requirement to conduct a MHA once during each 180-day period during which a member is deployed (in-theater MHA) until January 1, 2019. This policy is expected to be published by July 2016.

The Department is integrating the annual MHA requirement into the Periodic Health Assessment (PHA) process in an effort to standardize these assessments across the military components. This requirement has been integrated into the DODI for PHAs. The policy is estimated to be published by July 2016.

NUCLEAR MODERNIZATION

64. Senator DONNELLY. Secretary McCord, many have raised concerns about the "bow wave" of cost we are facing in nuclear modernization efforts. As you look at the FYDP and years beyond, do you believe that these plans are manageable?

Secretary MCCORD. With proper financial management planning, the DOD should be able to handle the modernization of strategic platform, while at the same time safeguard the requirement for non-nuclear related modernization costs. This is not to imply that it will not be a fiscal challenge. The collective annual costs of acquiring the replacement for the entire nuclear triad, the *Ohio*-class ballistic missile submarine, the Minuteman III Intercontinental Ballistic Missile and a new strategic bomber for the Air Force will be in the billions of dollars, and will present the Department with a unique task. Previous modernization of America's strategic nuclear deterrence enterprise were accomplished by topline increases to avoid having to make drastic reductions to our conventional forces, and such increases would be prudent again.

For the time period covered in the current fiscal year 2017 President's Budget Future Year Defense Program, we believe that the costs of all nuclear enterprise modernization costs have been accommodated, without adversely impacting the funding for non-nuclear defense programs. As for follow-on fiscal years (beyond fiscal year fiscal year 2021), the DOD is fully aware of the funding challenges, and is already exploring options to mitigate production costs, by investing in innovative strategies to lower future costs for these programs.

65. Senator DONNELLY. Secretary McCord, the heaviest cost burden for our nuclear modernization efforts will fall on future administrations. What are you doing now to set the Department up for success in the future?

Secretary MCCORD. Both the Navy and the Air Force are actively looking at developmental and production efficiencies that would lead to lower costs. We expect the total cost of nuclear modernization to be in the range of $350 to $450 billion. Although this still presents an enormous affordability challenge for DOD, we believe it must be funded. Previous modernizations of America's strategic deterrent and nuclear security enterprise were accomplished by topline increases to avoid having to make drastic reductions to conventional forces, and it would be prudent to do so again. I hope DOD can work with Congress to minimize the risk to our national defense.

66. Senator DONNELLY. Secretary McCord, where do you see the biggest risks in nuclear modernization from a budget perspective?

Secretary MCCORD. From a DOD perspective, the most significant challenge will be coping with the synergy of developing and procuring several separate strategic platform and weapon systems concurrently in the coming decade. The prospect of

acquiring a replacement for the *Ohio*-class ballistic missile submarine, a replacement for the Minuteman III Intercontinental Ballistic Missile, the Air Force new strategic bomber, and a new nuclear armed Air Launch Cruise Missile, while at the same instance supporting the operational deployment of legacy strategic systems will be demanding and difficult if not properly managed, which could adversely affect the funding for other national security activities.

Also, while the budget demand for the *Ohio* Replacement Program (ORP); Long Range Standoff (LRSO) cruise missile; B–21 long range strike bomber; and the Ground Based Strategic Deterrent (GBSD) program are well known, there are several other systems in development, all in the same mission area that also mature in the next 10 years. Those include the B61 nuclear gravity bomb Tail Kit Assembly (B61 TKA); modifications and modernization of the Navy's Trident II (D5) Submarine-Launched Ballistic Missile and Air Force Minuteman III modernization projects.

Collectively, these critical nuclear enterprise requirements could overwhelm the budget for other non-nuclear modernization programs. Especially in the time period between fiscal year 2023 and fiscal year 2028, when several of the strategic platforms will reach rate production.

CONVENTIONAL PROMPT GLOBAL STRIKE

67. Senator DONNELLY. Secretary Carter, hypersonics are addressed as a high priority in your fiscal year 2017 budget request. Why?

Secretary CARTER. Hypersonics have potential to add a new dimension to U.S. military capabilities that are vital to maintaining military superiority in the future. Hypersonic vehicles and weapons could answer warfighter needs with technology innovation that offers promising capabilities to rapidly engage time-sensitive, high-value targets in anti-access/area denial environments.

The Department is also aware of international investments in hypersonic technologies. It is important for the United States to understand the challenges with and advantages of this transformational technology.

68. Senator DONNELLY. Secretary Carter, do you view conventional prompt global strike as an important element of our hypersonic research and development efforts?

Secretary CARTER. Yes, the technology developed and tested as part of the Department's Conventional Prompt Strike (CPS) program has resulted in a much greater understanding of the extreme flight regimes and capabilities we may eventually deploy. The CPS National team has achieved numerous technological advances. A successful flight experiment in 2011 demonstrated the ability to fly a hypersonic glide body at hypersonic speeds over long distances, arriving at the intended destination. Future planned flight experiments will continue this technology maturation.

Hypersonic weapons could provide new strategic approaches to preventing and winning conflicts against advanced threats, specifically time-critical, high-value targets in anti-access/area denial environments. The CPS effort is poised to achieve an acquisition milestone decision by the end of 2020, consistent with the fiscal year 2016 National Defense Authorization Act.

69. Senator DONNELLY. Secretary Carter, what is your perspective on conventional prompt global strike transitioning to a program of record and the ideal timing for that transition?

Secretary CARTER. The Department is encouraged by efforts to date, in particular the successful hypersonic glide flight test in 2011. Continued Conventional Prompt Strike (CPS) research and development is promising and may enable a transition to a program of record by the end of 2020, consistent with the fiscal year 2016 National Defense Authorization Act.

A decision to transition to a program of record will be based on a number of factors, including technology maturation, adversary capabilities, and a careful assessment of how CPS fits with other U.S. kinetic and non-kinetic capabilities. The current development program, with its upcoming flight tests, will further reduce technical risk, help determine deployment options, and position the Department well for a milestone decision and transition to a program of record no later than 2020.

NSWC CRANE

70. Senator DONNELLY. Secretary Carter, following up on your commitment to visit Naval Surface Warfare Center Crane, please provide preferred dates for the visit. I look forward to hosting you in Indiana.

Secretary CARTER. It is my understanding our staffs are working to coordinate a date for such a visit and I look forward to making it to Indiana and NSWC Crane in the future.

QUESTIONS SUBMITTED BY SENATOR MAZIE HIRONO

ASIA PACIFIC-REBALANCE

71. Senator HIRONO. Secretary Carter, as the department continues to rebalance our military forces in the Asia-Pacific and Middle East, there are clearly new challenges in terms of available resources. How does the fiscal year 2017 budget proposal affect the rebalance and our military readiness in the Pacific region?

Secretary CARTER. The fiscal year 2017 President's Budget submission further operationalizes the rebalance to the Asia-Pacific. The United States seeks to preserve peace and stability, and maintain our strategic advantage in an area that is critically important to America's political, economic, and security interests. The rebalance will continue the Department's efforts to advance a geographically distributed, operationally resilient, and politically sustainable posture in the region. We continue to resource the forward presence of some of our most advanced capabilities in and around the region, including F–22 stealth fighter jets, P–8A Poseidon maritime surveillance aircraft, and our newest surface warfare ships. The Department also continues to resource the implementation of key posture initiatives in places like Guam, the Northern Marianas, and Australia; modernize our existing footprint in Korea and Japan; and strengthen existing partnerships and develop new ones, from India to Vietnam. Key contributions from partners like Singapore augment our investments and enable us to further realize our initiatives in the region.

The Department is pursuing these initiatives in the context of broader efforts to support and strengthen a regional security architecture that benefits everyone—from modernizing alliances and building the capabilities of friends and allies who want to do more in the region, to bolstering our ties with the Association of Southeast Asian Nations. The budget fully supports the five-year, $425 million Southeast Asia Maritime Security Initiative.

More long-term, the budget also invests heavily in the Joint Force's ability to deter and, if necessary, win a high-end conventional conflict in a contested environment that a potential adversary may choose to start, across all warfighting domains (air, land, sea, space, and cyberspace). China is among our most stressing competitors, as it continues to advance anti-access and other systems that seek to threaten U.S. military advantages in specific areas. In this context, the budget funds the development and fielding of a range of U.S. capabilities and new technologies to counter the growing military capabilities of competitors like China. These include investments in: procurement and modernization of strike fighter and attack aircraft; lethality in the platforms and payloads of our undersea force; new passive and active defenses to support a resilient posture; aggressive research and development efforts; and a range of cross-domain capabilities which strengthen Joint Force power projection, including in precision-guided munitions, stealth, electronic warfare, and assured operations in the cyber and space domains.

MISSILE DEFENSE

72. Senator HIRONO. Secretary Carter, North Korea has recently fired test missiles into the Sea of Japan and was purported to have tested a nuclear weapon. While sanctions are important, we must remain vigilant and prepared as the country continues these provocative actions. Secretary Carter, given these actions and the likely improvement of the North Korean missile capability what is the Department doing in terms of protecting allies close to the situation such as Japan and Korea? As for protecting the United States, what is the department doing in terms of protecting against missile threats to Hawaii?

Secretary CARTER. The United States maintains an array of forward-deployed missile defense capabilities in both the Republic of Korea and Japan in addition to indigenous capabilities currently fielded by each of these nations for their own self-defense. Additionally, the United States continues to work with both nations to grow and adapt each alliance's defensive capabilities through continued Foreign Military Sales; bilateral and multilateral exercises; and a trilateral information-sharing arrangement between the United States, Japan, and the Republic of Korea. Further, the ground-based interceptors, deployed in Alaska and California, provide defensive coverage of Hawaii against the limited North Korean long-range missile threat. The total number of operational interceptors deployed in the United States is being increased from 30 to 44 to ensure that the United States remains protected against

intercontinental ballistic missile threats. The United States and our allies are postured to defend against the limited North Korean ballistic missile threat.

CYBER

73. Senator HIRONO. General Dunford, you mentioned that Russia and China are actively challenging us in our cyber capabilities. North Korea and Iran, while not as big of a threat, also have cyber capabilities that are potentially harmful to us. Furthermore, in past hearings, the message has been that our adversaries are closing the technology gap and now have access to many of the capabilities that gave us the edge in the past. I realize that the current fiscal environment spurs the Department of Defense to focus on our immediate need for readiness, but it is also important that we do not lose our edge. The fiscal year 2017 budget funds $6.78 billion in fiscal year 2017, which you stated is a 13 percent increase from last year. Do you feel that this funding will be adequate in enabling us to continue to maintain our edge? Can you please discuss the importance of maintaining our cyber capabilities and how this budget supports this need?

General DUNFORD. [Deleted.]

ENERGY

74. Senator HIRONO. Secretary Carter, the national security of our country is greatly dependent on the implantation of energy security efforts. By decreasing our energy footprint, we enable our forces to more efficient and lessen our dependence on fuel. Can you please provide an update on how the fiscal year 2017 budget reflects the efforts of our country to reduce consumption, use alternative clean sources and increase U.S. energy security?

Secretary CARTER. The fiscal year 2017 President's Budget includes a $2.5 billion investment to increase our warfighters' capability through more energy efficient weapons systems, a reduction in energy consumption on our installations and in theater, and the use of alternative sources of energy to reduce operational burden—this increases U.S. military operational effectiveness and readiness.

For instance, the Improved Turbine Engine Program will reduce fuel use in our UH–60 and AH–64 helicopters by 13 to 25 percent, and enable increased range, endurance, and performance in high altitude/high temperature conditions. At sea, the installation of Hybrid Electric Drive propulsion on board our DDG–51 class destroyers may extend time-on-station by up to 2.5 days. The Air Force's pursuit of adaptive engine technology will increase range and endurance of fighter aircraft and decrease the supporting requirement for tanker aircraft by achieving 25 percent greater fuel efficiency. Likewise, the Army's pursuit of tactical micro-grids and more efficient power generation will reduce the burden of resupplying contingency bases distributed across contested operating environments.

The Department also is developing and fielding alternative, non-fossil fuel sources of energy that support increased warfighting capabilities. For example, the Marine Corps is fielding portable tactical solar systems, which, in conjunction with thermally improved shelters and more efficient environmental control systems, can reduce the frequency and risks of resupplying small contingency bases.

The Department has made great progress towards improving the energy efficiency of its installations. With an annual energy cost of approximately $4 billion, installation energy is the single largest operating cost of our installations. To reduce this cost, the Department is pursuing energy efficiencies through building improvements, new construction, and third party investments. Since fiscal year 2009, we have reduced the energy consumed on our military bases by about 10 percent, avoiding over $1.2 billion in new energy costs. In addition to using appropriated funding for energy conservation and efficiency initiatives, the Department is continuing to take advantage of third-party financing tools through energy performance-based contracts to implement renewable technology and energy efficiency improvements in our existing buildings.

The Department has also made great progress in deploying Renewable Energy (RE) and is using it for everything from powering remote special operations to air conditioning and lighting at our installations. We are on track to meet our RE facility energy goal of 3 gigawatts and 25 percent by fiscal year 2025—approximately 262 new RE projects came online during fiscal year 2015, collectively representing 58 megawatts of new renewable capacity, that are cost-effective utility scale projects and, when feasible, include energy resilience capability (i.e., are micro-grid ready).

BALANCING RESOURCES

75. Senator HIRONO. Secretary Carter, in this fiscal environment you have to make hard choices between force structure, modernization, and readiness. Do you

believe that this budget reflects the best balance between these three components? Which area suffered the most? What can we do in the future to ensure that we are adequately fulfilling the needs of each component?

Secretary CARTER. Yes, given the current funding constraints the Department has assumed some risk in fiscal year 2017 modernization; however, increased and predictable funding is needed over the Future Years Defense Program (FYDP) to sustain our investments in the future and maintain U.S. superiority. The fiscal year 2017 budget request strikes a prudent balance among the modernization of the Joint Force, its size, and its readiness, and continues to keep faith with servicemembers and their families. The fiscal year 2017 funding is constrained by the Bipartisan Budget Act (BBA) of 2015, but this budget reshapes the Department in order to address current and future operational challenges. The Department's fiscal year 2017 budget retains major elements of our planned force structure; invests in the future; emphasizes lethality and capability over size; pursues innovative "offset" capabilities and processes; and enables the Joint Force to operate across all domains including cyber. The Congress needs to eliminate the funding caps in order to ensure we are adequately fulfilling the needs of each Component.

MODERNIZATION

76. Senator HIRONO. Secretary Carter, the current fiscal environment forces the services to balance readiness and modernization. When modernization efforts slip to the right, equipment is forced to perform beyond the service life expectation and we risk the repercussions of an aging fleet. Do you believe that the budget adequately focuses on the need for modernization? What areas are you most concerned about?

Secretary CARTER. The Department has assumed some risk in fiscal year 2017 modernization due to fiscal constraints; however, increased and predictable funding is needed over the Future Years Defense Program (FYDP) to sustain our investments in the future and to maintain U.S. superiority. The fiscal year 2017 budget request strikes a prudent balance among the modernization of the Joint Force, its size, and its readiness, and continues to keep faith with servicemembers and their families. The fiscal year 2017 funding is constrained by the Bipartisan Budget Act (BBA) of 2015, but this budget reshapes the Department in order to address current and future operational challenges. The Department's fiscal year 2017 budget retains major elements of our planned force structure; invests in the future; emphasizes lethality and capability over size; pursues innovative "offset" capabilities and processes; and enables the Joint Force to operate across all domains including cyber.

The Department's greatest responsibility is to win the nation's wars. The Department will continue to invest in the most capable, ready, and efficient force that can project power globally for full-spectrum operations against a range of threats. The fiscal year 2017 budget request supports the following major modernization efforts:

- Provides the Army, Marine Corps, and special operations forces with greater lethality to ensure ground forces can deter and, if necessary, fight and win a full-spectrum conflict.
- Provides stability in Navy shipbuilding while buttressing aviation and weapons to address emerging challenges. The fiscal year 2017 budget request supports the construction funding for 38 ships across the FYDP and supports steady production of destroyers and submarines; 10 destroyers and 9 submarines are constructed through fiscal year 2021 to support a fleet size of 308 ships.
- Includes funding in the FYDP shipbuilding construction program for the *Ohio* Replacement Program Advanced Procurement beginning in fiscal year 2017; 1 LHA amphibious assault ship replacement; 4 T–AO(X) fleet oilers, and continued funding for the refueling and overhaul of the USS *George Washington* (CVN 73).
- Funds 2 littoral combat ships and continues to finance the detailed design and construction of the second *Ford*-class carrier and provides for the procurement of carrier-based aircraft to address a looming strike-fighter shortage in the 2020s, and it bolsters funding for some of the Navy's most capable weapons to provide a powerful deterrent to potential aggressors.
- Supports the Marine Corps efforts to actively modernize and prepare for future challenges, as demonstrated by its Joint Strike Fighter program achieving initial operating capability last year, and increase this momentum with new technologies to enable its mission set.
- Maintain an Air Force with global power projection capabilities and modernizing next generation Air Force combat equipment—to include fighters, bombers, and munitions—particularly against increasingly sophisticated air defense systems, while sustaining the health of the combat fleet.

I am most concerned with ensuring that U.S. Forces be the best trained warfighters with the most technologically advanced equipment available to ensure the security of the United States and its allies.

VETERANS' TRANSITION PROGRAM

77. Senator HIRONO. Secretary Carter, the need for improvement in enhancing veterans' transition programs continues to be an important issue. I'm sure you agree that supporting our servicemembers during their transition into civilian life should remain a top priority for the Department. Please comment on how the fiscal year 2017 budget supports this area and could you provide any updates on the joint collaboration efforts between DOD and VA?

Secretary CARTER. Supporting servicemembers during their transition into civilian life remains a top priority for the Department.

The proposed fiscal year 2017 budget supports the Department's current efforts to improve servicemember transition. It sustains programs that educate and credential servicemembers as well as those that improve transition preparedness of servicemembers throughout their military careers.

The proposed fiscal year 2017 budget also funds efforts that inspire future generations to serve. These efforts include funding: to enact a modern military retirement system; sustain programs dedicated to supporting financial readiness and ending veteran homelessness; and improve job skills training, credentialing and license portability, particularly for dislocated workers, transitioning servicemembers, veterans, and military spouses.

Collaboration between the Department of Defense (DOD) and the Department of Veterans Affairs (VA) regarding transition is strong. DOD relies heavily on the VA to provide resources and services to transitioning servicemembers who either do not meet the Career Readiness Standards or are determined to need further transition support. The Department partners closely with the VA through the Transition Assistance Program (TAP) Executive Council and Senior Steering Group to monitor the execution, assessment, and modification of TAP. Additionally, the Department continues to collaborate with VA through many programs to ensure the flow of medical and health-related information to allow for a continuum of care. Furthermore, the Department, working with the VA and the Department of Labor, continues to directly engage states regarding the elimination of barriers for servicemembers and veterans to receive civilian licenses.

The Department appreciates Congress's efforts to support servicemembers in their transition into civilian life, particularly through the encouragement of constituent businesses and organizations to educate, certify, and employ our transitioning servicemembers.

DOD–VA ELECTRONIC HEALTH RECORD COLLABORATION

78. Senator HIRONO. Secretary Carter, in the 2008 National Defense Authorization Act, the Department of Defense and the Department of Veterans Affairs were directed to implement "fully interoperable" electronic health records. Seven years later, the Government Accountability Program placed VA Electronic Health Records on its high risk list for mismanagement, waste, cost overruns and in most need of transformation. One of the problems cited by GAO was the continued lack of interoperability between DOD and VA Health Records, which inhibit VA's ability to provide timely, quality health care to our nation's veterans. This is a problem that GAO has reported on for more than a decade, and a problem that is necessary to address in order to ensure a continuum of care for veterans. Recently, DOD and VA have both announced plans to upgrade their existing software system. DOD has announced that it will spend 4.3 billion to upgrade the Armed Forces Longitudinal Application, while VA is continuing to update VistA. Can you please provide an update and comment on this issue?

Secretary CARTER. Our servicemembers, veterans, retirees, and their families deserve nothing less than the best possible health care and services that the Department of Defense (DOD) and Department of Veterans Affairs (VA) can provide. Our mission is to fundamentally and positively impact the health outcomes of active duty military, veterans, and eligible beneficiaries. To this end, DOD is committed to two equally important objectives: improving data interoperability with both VA and our private sector healthcare partners, and successfully transitioning to a state-of-the-market electronic health record that is interoperable with VA and the commercial healthcare systems used by our TRICARE network providers. Ultimately, this means that up-to-date and comprehensive health care information is available whenever and wherever it is needed to facilitate decisions.

We have made significant progress in achieving both of these objectives. Today, DOD and VA share a significant amount of health data—more than any other two major health systems. DOD and VA clinicians are currently able to use their existing software applications to view records of more than 7.4 million shared patients who have received care from both Departments. This data is available today in near real time, and the number of records viewable by both Departments continues to increase. Both Departments' health care providers and VA claims adjudicators successfully access data through our current systems nearly a quarter of a million times per week.

This process involves two of the world's largest health care providers, with hundreds of thousands of users, and millions of data elements. This requires strong communication, collaboration, and technical leadership. A tangible product of this work can be seen in the Joint Legacy Viewer (JLV), which provides an integrated display of DOD, VA, and TRICARE network provider data for clinicians and other users. For DOD clinicians, JLV is embedded directly into the Armed Forces Health Longitudinal Technology Application (AHLTA), allowing any registered user to easily view a comprehensive picture of a beneficiary's health record, regardless of whether the data resides in AHLTA, Veterans Health Information Systems and Technology Architecture (VistA), or a TRICARE network provider's EHR. JLV has received considerable praise from both DOD and VA users, with many commenting on its ability to save time in clinical interactions and to allow benefits adjudicators to cross-reference retiree records with the more comprehensive medical record in JLV. Because of this positive feedback, DOD and VA have sought to rapidly expand access to JLV. Originally developed as a pilot program with 275 users at nine sites in 2014, JLV has now been fielded to nearly every DOD medical facility, all VA medical centers, and every Veterans Benefits Administration regional site, supporting over 100,000 registered users.

In November 2015, DOD formally issued a letter to Congress certifying that we had met the requirement of interoperability in the fiscal year 2014 National Defense Authorization Act (NDAA) by mapping all data in DOD's AHLTA outpatient electronic health records (EHR) system to existing national standards. Based on the recommendations of DOD and VA functional representatives, DOD also integrated data from other DOD health IT systems, including inpatient, theater, and pharmacy. Once VA finalized its efforts, we delivered to Congress a joint certification letter on April 8, 2016 (see enclosed).

On a parallel path, DOD's modernization effort is well underway. In July 2015, the competitive contract for a new EHR was awarded to a team led by Leidos that includes 34 other partners. At the core of this modernization will be Cerner's EHR, one of the most widely used and trusted EHR systems on the market today, used in nearly 18,000 facilities worldwide. Henry Schein, an industry-leading capability, will support the dental component of the new EHR. In addition to utilizing the Cerner and Henry Schein suite of solutions, this new EHR system will continue to provide industry leading interoperability with the VA, other federal agencies, and the private sector by using federally recognized Office of the National Coordinator standards. In accordance with the fiscal year 2014 NDAA, deployment is scheduled to start later this year at the initial operational capability sites in Washington State representing all three services.

DOD and VA remain in mutual agreement that interoperability with each other and our private sector care partners remains a priority. This broader interoperability is not dependent on a single system. This strategy makes sense for both Departments and provides the most effective approach moving forward to care for servicemembers, veterans, retirees, and their families. The effort continues to have direct senior-level oversight from both Departments as well as rigorous oversight from the Congress.

QUESTIONS SUBMITTED BY SENATOR MARTIN HEINRICH

THIRD OFFSET

79. Senator HEINRICH. Congress authorized the "Third Offset" initiative last year to accelerate the fielding of systems that would help counter the technological gains of our adversaries. There was a significant amount of bipartisan support in congress when it voted in favor of the NDAA and later wrote a $100 million check for the effort. As part of our legislative responsibility to appropriate dollars and direct how they are spent, the defense committees instructed that up to half of the funds be spent on the promising area of Directed Energy. Yet, we are hearing reports that none of these funds is being spent on Directed Energy. Is this specific funding being

spent, and will be spent, on Directed Energy as intended by Congress and is so, how much?

Secretary CARTER. The Department appreciates the congressional appropriation of $100 million from the fiscal year 2016 Omnibus Appropriations Act to support the Third Offset Strategy to accelerate systems that would help counter the technological gains of our adversaries. The Department is currently vetting internal proposals that are responsive to the Third Offset initiative, which include directed energy program proposals.

80. Senator HEINRICH. Can you please look further into this, make appropriate changes where necessary, and keep this committee informed of those decisions?

Secretary CARTER. Yes, I will ensure the committee is apprised of the Department's plans to execute the funds within the Technology Offset congressional add.

ENCRYPTION

81. Senator HEINRICH. I read with interest the remarks you recently made during your visit to California, when you said that, "data security is an absolute necessity for [the military]," and that, "I'm not a believer in back doors or a single technical approach to what is a complex problem." I strongly agree with you. Robust encryption is central to securing the financial transactions, health data, and personal safety of all U.S. citizens. I'd like to get your view on our adversaries' cyber capabilities, and the threat they pose to our national interests. Do state-sponsored cyber actors in other countries have offensive tools and capabilities that rival that of the United States in cyberspace?

Secretary CARTER. [Deleted.]

82. Senator HEINRICH. To what extent do these foreign cyber actors pose a significant threat not just to the personal data and safety of U.S. citizens, but also to the security and reliability of U.S. critical infrastructure?

Secretary CARTER. [Deleted.]

83. Senator HEINRICH. If you knew your adversary required all internet service providers and app developers to build decryption tools for their software and hardware, would U.S. Cybercommand consider that a key vulnerability to target in preparing the battlefield and in war-planning?

Secretary CARTER. Any effort to weaken or bypass encryption represents a vulnerability that could be used to exploit a target. Strong encryption is good for U.S. national security, which is the reason I have been opposed to a single technical approach to commercial encryption that would give the Government unfettered access to data.

General DUNFORD. Adversary use of decryption tools could be a vulnerability depending on the cyber actor and the software being employed. The vulnerability's magnitude depends on the nature of software being employed and complexity of the cyber domain.

UKRAINE

84. Russia has said it is removing the main part of its forces from Syria, after having largely taken the winter off from fighting in Ukraine. What are your thoughts on Russia's next moves in Eastern Europe?

Secretary CARTER. [Deleted.]

General DUNFORD. The conflict in Ukraine will continue to simmer as Russia attempts to pressure and leverage Ukraine's current political crisis. We expect Russia to exploit opportunities to sustain instability in Ukraine.

85. What are we doing to better monitor the situation in Ukraine and provide strategic warning should Russia decide to reengage its forces there?

Secretary CARTER. [Deleted.]

General DUNFORD. [Deleted.]

EUROPEAN SECURITY INITIATIVE

86. Senator HEINRICH. I was pleased to see the budget request year quadruples the European Security Initiative to $3.4 billion. I was also glad to see we will be deploying several thousand additional troops to Europe, and providing for the first time a more permanent presence in the Baltics. However, this troop deployment won't actually happen until 2017. What kind of force presence do we have in place today, and is it enough to reassure our allies that the United States will defend them against Russian aggression?

Secretary CARTER. There are approximately 62,000 active duty U.S. military personnel stationed in 12 countries across Europe. This presence is comprised of components from all of America's military services who organize, train, and equip ready forces to provide timely regional security. Their missions range from joint and combined multi-national operations to engagement activities with Allied and partner nations, while also supporting missions of U.S. Africa Command, U.S. Transportation Command, the North Atlantic Treaty Organization (NATO), and others.

Additionally, there is an existing rotational presence of U.S. Forces and armored equipment in Eastern Europe to include the Baltics. The proposed activities in the fiscal year 2017 European Reassurance Initiative (ERI) request will increase and enhance that rotation to a persistent presence of armored forces in Eastern Europe that will deploy with modernized equipment. U.S. presence activities have been effective in assuring NATO members of U.S. commitment to their security and territorial integrity, with the activities in the fiscal year 2017 ERI request continuing those assurance efforts while also funding deterrence measures to enable a rapid response to threats made by aggressive regional actors.

General DUNFORD. Currently, a US-based Armored Brigade Combat Team rotates to Europe for approximately six months per year. During the time it is in Europe, the Brigade supports Operation Atlantic Resolve (OAR), including forward deployments in the Baltics, Poland, Romania, Bulgaria, as well as other training events and exercises across Europe. During periods when the US-based armored unit is not in Europe, one of the two Europe-based brigade combat teams deploys a battalion to the Baltics and Poland, and the 12th Combat Aviation Brigade maintains a forward deployed helicopter detachment in the Baltics. Although we believe the current measures have reassured our Allies, our enhanced posture will bolster deterrence and improve operational effectiveness. We are in near-constant contact with our allies, and they repeatedly emphasize that they deeply appreciate the persistent rotational presence of U.S. Forces to Eastern Europe for the last two years, and they are confident of U.S. commitment to their security.

87. Senator HEINRICH. Is this presence sufficient to deter Russia from further efforts to annex its neighbors?

Secretary CARTER. The European Reassurance Initiative (ERI) is part of a comprehensive approach to address U.S. security priorities in Europe. ERI funds have been used to supplement U.S. Force presence in Europe through funding the rotational presence of U.S. Forces and armored equipment in Eastern Europe. The fiscal year 2017 ERI request will increase and enhance that rotation to a persistent presence of armored forces in Eastern Europe that will deploy with modernized equipment. In addition to funding these force rotations to assure allies, the fiscal year 2017 ERI request will also fund deterrence measures that will increase responsiveness and readiness by pre-positioning ammunition, fuel, and equipment and by improving infrastructure to enhance our ability to provide a rapid response against threats made by aggressive regional actors.

When taken in sum, these activities are a visible demonstration of the United States' resolve to support North Atlantic Treaty Organization assurance measures, bolster the security and capacity of our regional partners, deter and respond to aggressive actions from regional actors, and respond to crises in the region.

General DUNFORD. Our growing forward presence and unambiguous commitment to Article 5 of the North Atlantic Treat is deterring Russia from further aggression in Europe. We also continue work with NATO Allies to increase their presence in front line states, while enhancing NATO defense plans and non-military components.

The fiscal year 2017 ERI budget request includes two flagship initiatives that, if funded by Congress, will improve the U.S. deterrence posture. Those initiatives will allow continuous, rotational presence of a U.S.-based Armored Brigade Combat Team (ABCT) in Central and Eastern Europe, and the Army Pre-positioned Stock consisting of the equipment for a Division Headquarters, an Armored Brigade Combat Team, and a Fires Brigade. These activities reaffirm the U.S. commitment to NATO's collective defense under Article 5 of the North Atlantic Treaty, and to deter Russian aggression.

ISIL GLOBAL COALITION

88. Senator HEINRICH. You recently met in Brussels with 27 other countries' defense ministries involved in the military coalition to defeat ISIL. This coalition included partners like Saudi Arabia and the UAE. What kind of new commitments from these countries are you getting, and how do you plan to keep these countries engaged and participating in the coalition?

Secretary CARTER. The countries that attended the Defense Ministerial in Brussels pledged new commitments to the military campaign in various forms. These include: providing additional trainers and advisors, increasing airstrikes and expanding air operations into Syria, providing additional equipment and weapons, supporting mobility and logistics, providing intelligence, surveillance, and reconnaissance (ISR) and airborne command and control (C2), supporting police training, and providing medical support, among others. The granularity of numbers of the country of origin for a large number of commitments are classified, however, some of the contributions publicly announced include:

- Canada: increasing train, advise, and assist personnel, and adding medical personnel
- Denmark: seeking parliamentary approval of air strikes into Syria
- Italy: increasing personnel recovery assets and leadership and providing security forces for Mosul Dam repairs
- The Netherlands: extending its air operations into Syria and intensifying training of Iraqi Security Forces (ISF) including Peshmerga
- Saudi Arabia: recommitted to the air campaign and began strikes
- UAE: recommitting to the air campaign
- UK: Increasing strike aircraft, authorizing Syria operations, and providing additional personnel

The Department of Defense (DOD) continues to engage partners through a series of upcoming meetings and through detailed tracking and coordinating efforts. DOD tailors its bilateral and multilateral engagements closely to encourage partners to contribute more, and it tracks the status of partner nation contributions very closely. In addition to my regularly scheduled bilateral engagements, I will participate in three multilateral conferences with my counterparts through June 2016, including the U.S.-Gulf Cooperation Council (GCC) Defense Ministerial that I am hosting on April 20–21, 2016, where I will engage our Gulf Partners on a myriad of topics, including the counter-ISIL fight.

FUNDING SHORTFALLS IMPACTING TROOP MORALE

89. Senator HEINRICH. General Dunford, every fiscal decision has the potential to impact servicemembers. Sequestration's negative impact on troop morale has repeatedly been raised, not only in relation to the quality of life and needs of servicemembers and families, but also in regards to the unpredictability of resources and training. Could you discuss the impact on troop morale if the DOD is funded below the requested levels? Could you also discuss its impact on servicemembers and their families?

General DUNFORD. We have an amazingly resilient and committed All-Volunteer Force. However, the uncertainty created by sequestration added significant stress to that Force. Continued reductions in funding constrain our resources and create additional uncertainty. This will lead to insufficient training and equipment, possible further end strength reductions, and uncertainty in future pay and benefits. The culminating adverse impacts on job certainty, readiness, and retention weigh heavily on our All-Volunteer Force and their families.

IMPACT OF INCREASED RISK

90. Senator HEINRICH. General Dunford, budget reductions inevitably reduce the military's margin of error in dealing with risk and a smaller force strains our ability to simultaneously respond to more than one contingency operation. You stated that our country's top five challenges are China, Russia, North Korea, Iran, and the Islamic State. The United States is being forced to respond to these challenges in two different parts of the world. Do you believe this fiscal year 2017 budget supports adequate operations needed in both the Asia-Pacific and in the Middle East? In what areas will the DOD have to accept increased risk? How will the various combatant commanders adjust for these risks?

General DUNFORD. Our budget invests in the capabilities needed to maintain an advantage over adversaries and to transition the Joint Force to full-spectrum readiness. However, this process remains slow and fragile due to current operational demands. We are closely managing how the force is employed in all operations to meet current demands. The fiscal year 2017 budget balances investment in high-end capabilities, the capability and capacity to meet current operational demands, and the need to rebuild readiness and is sufficient to meet the strategy. However, I am concerned that current resource levels for the Department, even absent sequestration, are insufficient to meet the impending bow-wave of deferred modernization starting in 2019. To adjust for the risks, the Department has a process to allow combatant

commanders the ability to identify Capability Gaps that inform priorities for future resourcing decisions.

AUDITABILITY

91. Senator HEINRICH. Mr. McCord, what is the current status on the DOD's ability to reach full auditability? Is the Department still on track for meeting the goal of having financial statements audit-ready department-wide by 30 September 2017?

Secretary MCCORD. Significant progress has been made in the last five years in preparing the Military Departments, the defense agencies, and other defense organizations to be ready for annual financial audits. Last year, each Military Department began an independent audit of its

fiscal year 2015 current-year appropriations, and most of the larger defense organizations completed a mock audit. Current audits cover 90 percent of the Department's $673 billion in current-year budgetary resources and 78 percent of total budgetary resources. Work to prepare the remaining statements is intensifying. This is a great achievement given the magnitude and complexity of the Department.

The culture, business processes, and systems that have been in use for many years ably support the DOD mission, but are not so well suited for a financial audit. Accordingly, we remain fully committed to making the necessary improvements in our business processes and systems, as well as the reliability of our data, so that we can begin an audit of DOD's financial statements by September 30, 2017. We have a credible plan addressing these critical capabilities that is being monitored by the Assistant Deputy Chief Management Officer and me. In line with these plans, each component reports its progress every 60 days in fixing known problems, such as balancing our checkbook with Treasury, and in preparing other areas, such as completing inventories and valuation of assets.

Further, the Services have reported to the Deputy Secretary of Defense (DSD) that they would be ready for an audit by September 30, 2017. The DSD has reiterated to senior leaders across the Department that audit is a top priority.

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

TUESDAY, APRIL 5, 2016

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

U.S. CYBER COMMAND

The committee met, pursuant to notice, at 9:33 a.m. in Room SH–216, Hart Senate Office Building, Senator John McCain (chairman) presiding.

Committee members present: Senators McCain, Inhofe, Sessions, Ayotte, Fischer, Cotton, Rounds, Ernst, Tillis, Graham, Reed, Nelson, McCaskill, Manchin, Shaheen, Gillibrand, Blumenthal, Donnelly, Hirono, Kaine, King, and Heinrich.

OPENING STATEMENT OF SENATOR JOHN MCCAIN, CHAIRMAN

Chairman MCCAIN. Good morning. Committee meets today to receive testimony from Admiral Michael Rogers, USN, the Commander of U.S. Cyber Command, Director of the National Security Agency, and Chief of the Central Security Service.

A lot of titles, Admiral. That's good. Thank you for your many years of distinguished service and for appearing before this committee today.

Threats to our national security in cyberspace continue to grow in speed and severity. New attacks appear in the headlines on an increasingly frequent basis as nation-states, criminal organizations, and terrorists seek to leverage technology to steal, coerce, and deter. When you appeared before this committee in September, Admiral Rogers, you noted that we, quote, "have peer competitors in cyberspace" and that some of them have, quote, "already hinted that they hold the power to cripple our infrastructure and set back our standard of living if they choose."

Since that hearing, Russia has demonstrated the ability to cut power to hundreds of thousands of people in central and western Ukraine. This attack, the first confirmed successful cyberattack on a large-scale power grid, is terribly significant, as it demonstrates a sophisticated use of cyberweapons as a destabilizing capability and an effective deterrence tool. With Russia, China, and other potential adversaries developing capabilities intended to deter us along with our friends and allies, we must develop not only an ef-

fective deterrence policy, but also the capabilities necessary to deter any nation seeking to exploit or coerce the United States through cyberspace.

After significant urging by this committee, I believe the Defense Department is—recognized this need, and important progress has been made at Cyber Command. But, there's still a lot of work to do. For the most part, the services appear to be on track to meet the goal for the development of a 6,200-person cyberforce, but unless we see dramatic changes in future budgets, I'm concerned that these well-trained forces will lack the tools required to protect, deter, and respond to malicious cyberbehavior. In short, unless the services begin to prioritize and deliver the cyberweapon systems necessary to fight in cyberspace, we're headed down the path to a hollow cyberforce. Just as it would be unacceptable to send a soldier to battle without a rifle, it's unacceptable to deprive our cyberforces the basic tools they need to execute their missions. Some service budgets omitted funding for even the most basic tools, like those necessary for cyberprotection teams to assess and triage compromised networks. This is unacceptable, and I look forward to hearing your assessment, Admiral Rogers, of the Military Service's commitment to equipping the cyberforce. I also look forward to hearing whether the new acquisition authorities we provided Cyber Command in the fiscal year 2016 NDAA will help address some of these service-induced shortfalls.

While I'm encouraged by some of the progress of the Department of Defense in Cyber Command, I remain concerned that the administration's cyberpolicy, as a whole, remains detached from reality. For years, our enemies have been setting the norms of behavior in cyberspace while the White House sat idly by, hoping the problem will fix itself. In December, the administration provided its response, nearly a year and a half late, to this committee's requirement for a cyberdeterrence policy. The response reflected a troubling lack of seriousness and focus, as it simply reiterated many of the same pronouncements from years past that have failed to provide any deterrent value or decrease the vulnerability of our Nation in cyberspace. I applaud the recent efforts of the Justice Department to name and shame Iran for its cyberattacks against our critical infrastructure and financial sector. But, again, I remain puzzled as why it took nearly 5 years after Iran began attacking U.S. banks for the administration to begin doing so. That kind of indecisiveness is antithetical to deterrence, and our Nation simply cannot afford it.

Let me close by thanking you, Admiral Rogers, for your leadership at Cyber Command. You've always been very candid and forthcoming before this committee, and we appreciate that very much. We're finally beginning to field the cybercapabilities we need for the future. As we confront the challenges ahead, this committee remains committed to doing everything we can to provide you and the men and women you lead with the tools necessary to defend our Nation in cyberspace. I look forward to your testimony.

Senator Reed.

STATEMENT OF SENATOR JACK REED

Senator REED. Thank you very much, Mr. Chairman.

I, too, would like to welcome Admiral Rogers back to the committee—thank you, sir—and to express my gratitude to you and—but also to the men and women that you lead, the military and civilians who work to secure the department of networks, support the combatant commands in cyberspace, and defend the Nation against major cyberattacks.

Cyber Command is at another set of crossroads. The committee received testimony last fall from multiple witnesses recommending elevation of Cyber Command to a full unified command. I understand that elevation has been discussed by the Joint Chiefs, and that the Secretary is considering this recommendation as part of the Goldwater-Nichols reform effort. I would like to hear, Admiral, in your testimony and your comments, your views on the readiness of the Command for elevation and on the related issue of sustaining the dual-hat arrangement under which the commander of Cyber Command also serves as the Director of the National Security Agency.

Six years after Cyber Command was established, the Military Services are just now presenting trained military cyberunits to command. A little more than half of the planned units have reached initial operational capability. This is a major milestone, but trained individuals are only one part of military readiness. The other pieces are unit-level training and proficiency and equipping the forces. The Defense Department is only at the beginning phase of building a unit-level training environment. There are shortages and capability shortfalls in the toolkits available for the Cyber Protection Teams, and the Department has not yet developed a plan for or selected a service executive agent to acquire foundational situational awareness and command-and-control systems for our cyberforces. I look forward to a status report from you, sir, about the pace of progress in these areas.

There are other foundational challenges. The Department has deployed, and is in the process of acquiring, additional capable cybersecurity centers at all layers of its networks, from the large perimeter gateways to the millions of individual computers spread across the globe. Cyber Command has dozens of Cyber Protection Teams assigned to defend key segments of our networks, while the Military Services and the Defense Information Systems Agency have their own computer network defense organizations. A major task now is to integrate these centers and organizations under joint operational concepts to enable real teamwork. Admiral, again, I will be interested in your thoughts on this very difficult issue.

I am pleased that Cyber Command is joining the initiative to leverage the innovation of the commercial informational technology industry for both cybersecurity and its other missions. To keep pace with a rapidly changing threat, it makes sense to partner with an industry that innovates at the same pace. Admiral, I'm interested in hearing how you plan to apply the acquisition authorities the committee granted to Cyber Command in last year's Defense Authorization Act to working with the information technology sector, in particular.

Finally, Mr. Chairman, I would note that Admiral Rogers, in his prepared statement for the hearing today, quoted the Director of National Intelligence to the effect that China is still engaged in economic theft in cyberspace and that, quote, "Whether China's commitment of last September moderates its economic espionage remains to be seen." It is obviously a very serious matter if China does not live up to President Xi's pledge to President Obama. Again, I would be interested in your comments, sir, on this issue.

Thank you for your service. I look forward to your testimony.

Chairman MCCAIN. Admiral Rogers, welcome back.

STATEMENT OF ADMIRAL MICHAEL S. ROGERS, USN, COMMANDER, U.S. CYBER COMMAND; DIRECTOR, NATIONAL SECURITY AGENCY; CHIEF, CENTRAL SECURITY SERVICES

Admiral ROGERS. Thank you, sir. Good to be back.

Chairman McCain, Ranking Member Reed, and distinguished members of the committee, I am pleased to appear before you today to discuss the opportunities and challenges facing U.S. Cyber Command. I'd like to thank you for convening this forum.

It's an honor to represent the individuals of this fine organization, and I'm grateful for, and humbled by, the opportunity to lead this impressive team. I'm confident you'd be extremely proud of the men and women of U.S. Cyber Command if you saw their commitment to mission and hard-earned successes on a daily basis, as I am fortunate to do.

While my written statement goes into greater detail, I'd like to briefly highlight the challenges we face in today's environment and also some of the initiatives that the Command is pursuing to meet those challenges.

Over the last year, we've seen an increase of cyberspace operations by state and nonstate actors. We've seen a wide range of malicious cyberactivities aimed against both government and private-sector targets. At U.S. Cyber Command, we focus on actors that pose a threat to our national interests through cyberspace. Nations still represent the gravest threats to our Nation's cybersecurity, but we continue to watch closely for signs of nonstate actors making significant improvements in their cybercapabilities.

Malicious actors use cyberspace to steal intellectual property and citizens' personal information; and criminals' increasing use of ransomware to extort companies is a worrisome trend. Malicious actors have also intruded into networks, ranking from the Joint Staff's unclassified network to networks controlling our Nation's critical infrastructure. These threat actors are using cyberspace, I believe, to shape potential future operations, with a view to limiting our options in the event of a crisis. Despite this challenging environment, U.S. Cyber Command continues to make progress as it emphasizes shifts to operationally—operationalizing the Command and sustaining its capabilities.

Over the past year, we've continued building the capability and capacity of Cyber Command while operating at an increased tempo. We continue to make progress in building the cyber mission force of the 133 teams that will be built and fully operational by 30 September 2018. Today, we have 27 teams that are fully operational and 68 that have attained initial operational capability. It's impor-

tant to note that even teams that are not fully operational are contributing to our cyberspace efforts, with nearly 100 teams conducting cyberspace operations today. For example, the Command continues to support U.S. Central Command's ongoing efforts to degrade, dismantle, and ultimately defeat ISIL [Islamic State of Iraq and Syria]. Last year, we noted we had just established the Joint Force Headquarters DOD [Department of Defense] Information Networks. Today, I can probably report the JFHQ DODIN, as we call it, has made great strides towards its goal of leading the day-to-day security and defense of the Department's data and networks. Also, as the DOD expands the joint information environment, we will have significantly more confidence in the overall security and resilience of our systems. Our operations to defend DOD networks and the Nation's critical infrastructure proceed in conjunction with a host of Federal, industry, and international partners.

Recognizing that DOD is just one component of the whole-of-nation's cyber team, U.S. Cyber Command's own annual exercises, CYBERFLAG and CYBERGUARD, offer unmatched realism as we train with Federal, State, industry, and international partners. Additionally, Cyber Mission Teams and Joint Cyber Headquarters are regular participants in the annual exercises of all the combatant commands. While our training is improving, we need a persistent training environment, which the Department is continuing to develop, to gain necessary operational skills and to sustain readiness across our force.

I'm excited by the innovation, cultural shift, and focus on long-term strategy that is emerging in the Command and the DOD. In the last year, we've established a Point of Partnership Program in Silicon Valley to link Command personnel to some of the most innovative minds working in cyberspace. Our program is aligned and colocated with the Department's Defense Innovation Unit Experimental, or DIUX, and we are building on the synergy among all DOD elements under the DIUX umbrella.

Last September, the Department identified the need to transform DOD's cybersecurity culture by improving individual performance and accountability. The Secretary and Chairman approved the DOD Cyber Security Culture and Compliance Initiative to address those concerns. Cyber Command was identified as the mission lead for this initiative, and is working closely with the Joint Staff and OSD to build the requisite capacity and structure. Cyber Command is also actively contributing to the implementation of the new DOD cyber strategy. The strategy, released in April of 2015, provides a detailed plan to guide the development of DOD's cyberforces and strengthen DOD's cyberdefense and cyberdeterrence posture. The pervasive nature of cyberspace throughout all facets of life and across geographic boundaries, coupled with a growing cyberthreat, makes deterrence in cyberspace a challenge, but evermore important. A proactive strategy is required that offers deterrent options to the President and Secretary of Defense, to include integrated cyberspace operations to deter adversaries from action and to control escalation.

To help with all of this, we requested and received enhanced acquisition and manpower authorities. I thank Congress and the President for the authorizations granted to Cyber Command in the

fiscal year 2016 NDAA. This represents a significant augmentation of our ability to provide capabilities to our Cyber Mission Teams as well as our ability to attract and retain a skilled cyber workforce. We are currently studying how to best implement those provisions, and laying the groundwork needed to put them into effect while, in parallel, evolving a formalized synchronization framework to optimize the employment of our Cyber Mission Force.

With that, thank you again, Mr. Chairman and members of the committee, for convening this forum and inviting me to speak.

[The prepared statement of Admiral Rogers follows:]

PREPARED STATEMENT BY ADMIRAL MICHAEL S. ROGERS

Thank you, Chairman McCain, Ranking Member Reed, and Members of the Committee. I am pleased to appear before you today to talk about the opportunities and challenges facing U.S. Cyber Command (USCYBERCOM). I am honored to represent the men and women of this strong team in their work to secure Department of Defense networks and defend the interests and security of our nation, in cyberspace. I know you would be as proud of them as I am if you could see their commitment and successes on a daily basis as I do. We at USCYBERCOM welcome this opportunity to tell you how we are shifting from a focus on building the Command to an emphasis on operationalizing, sustaining, and expanding its capabilities.

By way of context, USCYBERCOM is a sub-unified command of U.S. Strategic Command (USSTRATCOM). Though USSTRATCOM is headquartered in Nebraska, we are located nearby in Maryland, where we share a corner of Fort Meade with the National Security Agency (NSA), which I also direct. Our Congressionally appropriated budget for fiscal year 2016 amounts to $466 million (that's $259 million for our Headquarters and $207 million for Cyber Mission Forces support). We have 963 billets for full-time employees, both military and civilian, working in USCYBERCOM's headquarters, plus another 409 contract employees. Our military contingents represent every one of the Armed Services, both Active and Reserve, and they include Coast Guardsmen as well. USCYBERCOM comprises a headquarters organization and seven components: the Cyber National Mission Force, the Joint Force Headquarters-DOD Information Networks, plus joint force headquarters and growing forces at Army Cyber Command/Second Army, Marine Forces Cyberspace Command, Fleet Cyber Command/Tenth Fleet, and Air Forces Cyber/24th Air Force. Our seventh partner, though not a component, is U.S. Coast Guard Cyber. USCYBERCOM manpower reflects a true total force effort encompassing a robust Active component along with both Guard and Reserve forces being fully integrated at all echelons from the highest levels of our USCYBERCOM headquarters to our Cyber Mission Forces. Our service components are leading our integration efforts and building surge capacity, and they are doing an outstanding job. While USCYBERCOM resides with NSA, the two organizations are distinct entities with separate missions, authorities, and resource streams. Neither is an arm of the other, and both perform vital tasks on behalf of our nation.

CURRENT THREATS AND POTENTIAL THREATS

USCYBERCOM's mission goes well beyond defending DOD's networks and systems against cyber threats and cyber responses to those threats. Since I spoke to you last year USCYBERCOM has seen an intensification of cyberspace operations by a range of state and non-state actors. A year ago I mentioned North Korea's brazen cyber operations to impair and intimidate Sony Pictures Entertainment. We have seen no repetition of such destructive assaults against targets in the United States. On the other hand, we have seen a wide range of malicious cyber activities, aimed against American targets and victims elsewhere around the world, and thus we are by no means sanguine about the overall trends in cyberspace.

In a public forum it can be difficult to explain the nuance and depth of the threats that we at USCYBERCOM see on a daily basis. We must, however, because Congress, the federal government, industry, allies, and the general public should understand the ability and determination of malicious cyber actors. Literally every American who has connected to a network has been affected, directly or indirectly, by cyber crime. By this point millions of us have had personal information stolen, or seen our accounts or credit compromised. Even if we have so far avoided such problems, however, we all pay higher prices for our computers and software, our Internet service, and the goods we buy as a result of cyber-enabled theft. That burden

weighs on the entire economy, costing jobs and dampening growth. Just as all our citizens have benefitted from the increased productivity and speed that cyber commerce facilitates, all likewise pay the costs of cyber crime. This multi-faceted problem is the context for what follows.

At USCYBERCOM, as in the Department of Defense writ large, we focus on foreign state and non-state actors who would harm our national interests in cyberspace. Criminal activity remains the largest segment of cyber activity of concern, but nations in many ways still represent the gravest threats, as they alone can bring to bear the skills, the resources, and the patience to sustain sophisticated campaigns to penetrate and compromise some of the world's best-guarded networks. If they can gain access to those networks, moreover, they can manipulate information or software, destroy data, harm the computers that host those data, and even impair the functioning of systems that those computers control. We remain vigilant in preparing for future threats, as cyber attacks could cause catastrophic damage to portions of our power grid, communications networks, and vital services. Damaging attacks have already occurred in Europe. Just before Christmas, malicious actors launched coordinated cyber-attacks on Ukraine's power grid, causing outages and damaging electricity control systems. If directed at the critical infrastructure that supports our nation's military, cyber attacks could hamper our forces, interfering with deployments, command and control, and supply functions, in addition to the broader impact such events could have across our society.

The states that we watch most closely in cyberspace remain Russia, China, Iran, and North Korea. Russia has very capable cyber operators who can and do work with speed, precision, and stealth. Russia is also home to a substantial segment of the world's most sophisticated cyber criminals, who have found victims all over the world. We believe there is some overlap between the state-sponsored and criminal elements in cyberspace, which is of concern because Russian actions have posed challenges to the international order.

China's leaders pledged in September 2015 to refrain from sponsoring cyber-enabled theft of trade secrets for commercial gain. Nonetheless, cyber operations from China are still targeting and exploiting U.S. government, defense industry, academic, and private computer networks. As Director of National Intelligence James Clapper testified last month, "China continues cyber espionage against the United States. Whether China's commitment of last September moderates its economic espionage remains to be seen."

Iran and North Korea represent lesser but still serious challenges to U.S. interests. Although both states have been more restrained in this last year in terms of cyber activity directed against us, they remain quite active and are steadily improving their capabilities, which often hide in the overall worldwide noise of cybercrime. Both of these nations have encouraged malicious cyber activity against the United States and their neighbors, but they currently devote the bulk of their resources and effort to working against their neighbors.

The so-called Islamic State in Iraq and the Levant (ISIL) is also a concern, though their organic capabilities to conduct malicious cyber activities so far remain limited and their main effort in cyberspace appears to be propaganda, recruiting, radicalization, and fundraising. ISIL has sought repeatedly to reach over our forces in the Middle East and carry the conflict into America itself. For instance, ISIL-affiliated cyber operators last spring posted the personal information of more than one hundred American service personnel, many of whom were here in the continental United States. Not only did the hackers for ISIL publicize the personal details on these Americans, but ISIL also called for jihad against them, urging followers in the United States to assassinate them and their family members. While there is no direct link between this ISIL posting of personal information on servicemembers and the recent extremist attacks in the U.S. and Europe, ISIL wants its followers on the Internet to take inspiration from such attacks.

In general all these various actors mount a range of cyber activities to support their interests in: a) fostering a nationalist vision of economic competition; b) intimidating émigré groups and neighbors whom they view as competitors; and c) deterring any perceived threats from other states, including ours. They steal from our corporations, and we learned last year that certain actors also stole the personal information of more than 21 million Americans that was stored in systems maintained by the Office of Personnel Management. Another group of hackers was responsible for an intrusion into an unclassified network maintained by our Joint Staff. Finally, we have seen cyber actors from more than one nation exploring the networks of our nation's critical infrastructure—and can potentially return at a time of their choosing. Collectively these actors make our government, our institutions, and our people spend far more on defense than the actors themselves spend on their efforts to penetrate our systems.

Some of these threat actors are seeking to shape us, narrowing our options in international affairs to limit our choices in the event of a crisis. As a result of these developments, we at USCYBERCOM are thinking more strategically about shifting our response planning from fighting a war to also providing decision makers with options to deter and forestall a conflict before it begins. These new options would be in addition to capabilities that help our combatant commanders succeed in their missions if and when conflict erupts and the joint forces receive an "execute order" to commence kinetic as well as cyberspace operations. All of this work must be seen in the context of the Department's evolution of thinking toward what senior leaders call the "Third Offset" and its promise for deterring conventional as well as nuclear war. USCYBERCOM stands ready to help develop and deploy the new cyber capabilities entailed in the Third Offset, particularly hardened command and control networks and autonomous countermeasures to cyber attacks. Finally, our efforts are also proceeding in tandem with a heightened collaboration across the federal departments, agencies, and industry aimed at increasing the costs (to adversaries) of malicious cyber activities.

PROGRESS AND PROSPECTS

Let me give you some details on how we are responding to the trends noted above. Over the last year we continued constructing USCYBERCOM while operating it at an ever-faster tempo. We have begun to transition from the "building the force" mode to a "readiness" mode. Our operations kept us busy defending the Department's networks and systems while supporting the missions of the combatant commands, especially U.S. Central Command (USCENTCOM), assisting other U.S. government entities (as authorized and upon the request of the relevant agency), and building capabilities to defend the nation against significant cyberspace attacks.

Progress in Building the Cyber Mission Force. To understand where we are today it is necessary to glance back at how far we have come. The Department of Defense concluded several years ago that defending the nation in cyberspace requires a military capability, operating according to traditional military principles of organization for sustained expertise and accountability at a scale that lets us perform multiple missions simultaneously. When we started to build that capability in early 2013, we had no cyber mission force, no ability to generate or train such an entity, and scant ability to respond at scale to defensive requirements or requirements from combatant commanders. Now we have 123 teams of a target total of 133; those teams comprise 4,990 people and will build to 6,187 when we finish. In terms of progress, we have 27 teams that are fully operational capable today, and 68 that have attained initial operating capability.

The application of military capability at scale is what the Cyber Mission Force (CMF) gives us in USCYBERCOM and in the Department as a whole. Our Combat Mission Teams (CMTs) operate with the combatant commands to support their missions, while National Mission Teams (NMTs) help defend the nation's critical infrastructure from malicious cyber activity of significant consequence. We have Cyber Protection Teams (CPTs) to defend DOD Information Networks alongside local Computer Network Defense Service Providers (CNDSPs). Each of them complements the efforts of the others. I should emphasize that Cyber Mission Force teams can and do contribute to our nation's cyberspace efforts even before they reach full operational capability. Elements of teams that are still "under construction" are already assisting the combatant commands and our partner departments and agencies. Cyber Protection Teams, for instance, played important roles in defending the Joint Staff's unclassified systems after an intrusion last summer, and in remediating the vulnerabilities that the intruders had utilized.

Those Cyber Mission Force teams give USCYBERCOM the capacity to operate on a full-time, global basis on behalf of the combatant commands. The Combat Mission Teams help combatant commanders accomplish their respective missions to guard U.S. interests and project our nation's power when authorized to deter those who would threaten our security—the teams help ensure that we have the ability to enable our combatant commanders to defeat emerging threats. Such assistance occurs daily, for instance, in the fight against ISIL, as Secretary Carter recently explained in his remarks in California. Although I cannot address the particulars in this setting, USCYBERCOM is executing orders to make it more difficult for ISIL to plan or conduct attacks against the U.S. or our allies from their bases in Iraq and Syria to keep our Service men and women safer as they conduct kinetic operations to degrade, dismantle, and ultimately destroy ISIL. The nation and every combatant commander can now call on CMF teams to bring cyberspace effects in support of their operations. Additional Combat Mission Teams under the functional commands (U.S. Strategic Command, U.S. Transportation Command, and U.S. Special Oper-

ations Command) bring still more resources to supplement those of the regional commands.

At USCYBERCOM, moreover, we control additional teams under the Cyber National Mission Force (CNMF) that can help defend America's critical infrastructure against malicious cyber activity of significant consequence. The CNMF comprise National Mission Teams, National Support Teams, and National Cyber Protection Teams to conduct full-spectrum cyberspace operations to deter, disrupt, and defeat adversary cyber actors.

DODIN Operations and Defense: At USCYBERCOM we have extended the same principles (unity of effort and command for sustained effort at scale) to the operation and defense of DOD information systems. Last year I noted that we had just established the Joint Force Headquarters (JFHQ–DODIN) and dual-hatted the Director of the Defense Information Systems Agency to command it. Today I can proudly report that JFHQ–DODIN has made great strides toward its goal of leading the day-to-day defense of the Department's data and networks. As a functional component command of USCYBERCOM located at DISA, JFHQ–DODIN directs an aggressive and agile network defense. The Department of Defense as a whole is working to harden and defend its networks and systems, with USCYBERCOM providing the operational vision and directing the defense, and the DOD Chief Information Officer (CIO), working with NSA, DISA and the Military Services, providing the technical standards and implementation policy. DOD CIO is measuring the cyber security status of the whole department, and for particular missions through the new CIO cybersecurity scorecard, which is provided to the Secretary each month. The Secretary recently announced another initiative as well, linked to broader Administration efforts to strengthen the nation's cybersecurity under the Cyber National Action Plan—a "bug bounty" to encourage private-sector experts (i.e., trusted hackers) to probe our systems for vulnerabilities. The goal of all of these measures is to minimize the adversary's ability to attack our systems and networks, and to detect, diagnose, contain, and eject an adversary should an attack occur.

Our operations to defend DOD networks and the nation's critical infrastructure proceed in conjunction with a host of federal, industry, and international partners (about whom I shall say more in a moment). Defending America in cyberspace is a whole-of-government, indeed a whole-of-nation, endeavor. No single agency or department has the authority, information, or wisdom to accomplish this mission alone, which is why USCYBERCOM and NSA recently updated our understandings with the Department of Homeland Security in a cyber action plan to chart our collaboration. The entire federal government, however, cannot do the job without the active participation and cooperation of the private sector. Here I compliment Congress for recently passing the Cybersecurity Information Sharing Act, which should enable industry to increase its sharing of threat information with the federal government (and vice versa) without fear of losing competitive advantage or risking additional legal liability. This is a key element in the government's efforts to improve the cybersecurity of critical infrastructure—and to frustrate adversary attempts to bend American foreign policy to their liking or even to harm Americans.

We seek to build the Command's capabilities (especially the Cyber Mission Force) with deliberate speed, and progress continues to accelerate as we learn and improve at building our teams. We remain committed to achieving full operational capability for the entire CMF by the end of fiscal year 2018. Our ability to do this is shaped in no small part by consistent funding throughout the remainder of the CMF build. The key to the CMF's utility to the Department and the nation is the proficiency of its personnel. We do our best to give our people the infrastructure, tools, and support they require, but military cyber operations, despite their high degree of automation, place a premium on insight, intuition, and judgment.

Training. Cyber operators are being trained to operate mission effectiveness (for the Department and for the nation), and they must operate in a manner that respects and protects the civil liberties and privacy of American citizens. Developing a training program for cyber operators resembles the challenge that DOD faces in training pilots and aircrew to operate some of the world's most advanced aircraft, maintaining their skills on the latest aircraft systems, and sustaining their numbers to ensure a constant sufficiency of motivated and technically excellent personnel. Creating such a "pipeline" in the U.S. military's (and other countries') air components took many years, so I am hardly surprised by the persistence and complexity of the challenges that we at USCYBERCOM confront in constructing the training and personnel pipeline for the Cyber Mission Force.

Sustainment. Training the force does not automatically bring it to peak proficiency. Teams must learn to operate against live opposition, and our commanders and seniors must develop an understanding of how cyber operations unfold so they have a better idea of what to expect and what can be achieved. USCYBERCOM has

been providing some insights by employing teams in the recent series of real-world operations, such as in dealing with intrusions in DOD systems and the networks of other federal entities. Cyber Mission Teams are now regular participants in the annual exercises of the geographic and functional combatant commands, even though the demand for CMF participation outstrips our capacity to provide teams to all the exercise organizers who request them. USCYBERCOM's own annual exercises, CYBER FLAG and CYBER GUARD, offer a certain degree of realism, assembling federal, state, industry, and international partners to practice cyber defense and offense against a wily opposition force. The realism they offer is limited, however, in part because they operate on simulated networks that do not come close to approximating the scale and complexity of the Internet. We can do better, which is why the Department is building for us an advanced Persistent Training Environment to exercise our teams, and though it is not yet complete it has already been used and found very helpful.

Capabilities. Our teams require specialized tools, infrastructures, and capabilities to perform their missions. The work of improving our ability to operate in cyberspace begins in our own DOD systems; our networks are continually being probed and frequently attacked, so we are learning to combine the insights we gain from these events with our knowledge of cybersecurity to achieve situational awareness and an intuitive feel for what is coming next. In addition, USCYBERCOM has partners that possess very useful capabilities and skills, so we are constantly seeking to expand our knowledge of what is under development in the Services, national labs, agencies, as well as key foreign partners.

Innovation. Secretary Carter spoke in California recently about the importance of innovation for DOD. We heartily agree, which is why our outreach to academia and to industry is expanding as well. In the last year we established a lean but motivated "Point of Partnership" in Silicon Valley to link Command personnel to some of the most innovative minds on earth. This new unit will help industry understand how to interact with USCYBERCOM—both how we work and where to plug in so we can work difficult, and mutual, problems together. It will also help USCYBERCOM scout technology trends, build trust, and develop mechanisms and pilot projects to facilitate the movement of the nation's cyber workforce across the public-private boundary. Our Point of Partnership is aligned and co-located with the Department's new Defense Innovation Unit-Experimental (DIUx), and we are hoping for synergy among all the DOD elements under the DIUx umbrella. Another of our efforts in this area is an ongoing set of initiatives and projects to bolster the security of hardware and software in DOD weapons systems. We are learning a great deal from this effort.

Culture. Innovation, technical upgrades, and cyber organizational changes are ongoing and necessary but by themselves are insufficient to help us fully defend our networks, systems, and information. Last September, the Department identified the need to transform DOD cybersecurity culture by improving individual performance and accountability as called for in the DOD Cyber Strategy. The Secretary and Chairman approved the DOD Cybersecurity Culture and Compliance Initiative (DC3I) to initiate a shift in the Department's cybersecurity norms. This initiative seeks to instill principles of operational excellence, personal responsibility, and individual accountability into all who provide or use cyber capability to accomplish a mission. The Department already inculcates a culture of responsibility and accountability in every DOD affiliate, both uniformed and civilian, who is authorized to handle a firearm. Our reliance on networks and data systems to accomplish our missions demands all DOD personnel understand their individual responsibilities to protect the Department of Defense Information Networks and act with similar discipline and diligence everytime they use Department systems. Instituting meaningful and lasting cultural change DOD-wide will require a long-term commitment by the Department. USCYBERCOM was identified as the mission lead for this initiative and is working closely with Joint Staff and the Office of the Secretary of Defense to build the capacity and structure to increase cybersecurity and promote mission assurance through improved human performance in cyberspace.

DOD Cyber Strategy. Another USCYBERCOM function is to help the Department's leadership to reflect and act on the full range of issues pertaining to the cyber field Many such issues fall outside our Command's mission set, strictly speaking, but still have relevance to how the United States can and should regard cybersecurity for the nation and cyberspace capabilities as an instrument of national power. We are called upon for contributions on matters such as the implementation of the new DOD Cyber Strategy, or the defense of personally identifying information of DOD personnel and affiliates in sensitive databases, because of our level of expertise on cyber matters. Senior leaders at the Command are leading teams or serving on all of the teams charged with implementing the DOD Cyber Strategy's many ini-

tiatives, particularly the "lines of effort" regarding the training and proficiency of cyber personnel as well as the integration of cyber effects in DOD and cross-agency planning efforts. We at USCYBERCOM, of course, consult constantly our network of partners across the U.S. government to learn more. Typically a combatant command, let alone a sub-unified command, is not staffed to play such a role for the Department, but cyberspace is a dynamic environment with a host of complicated and consequential issues, and DOD has not yet had time to build up the broad and deep reserve of institutional knowledge that it possesses on other matters.

Authorities. I thank Congress and the President again for the acquisition authorities granted to USCYBERCOM in the National Defense Authorization Act for Fiscal Year 2016. Together with new manpower flexibility these presage a significant augmentation of our role of bringing capabilities to our cyber mission teams and network defenders, as well as our ability to keep our DOD cyber workforce proficient. We are studying how best to implement that Act's provisions—such as the role of a new Command Acquisition Executive and the scope of cyber operations-peculiar equipment and capabilities—and laying the groundwork needed to put its provisions into effect after the Department drafts its implementation plan.

DOD has extensive sharing arrangements already with some of our closest allies and partners, who support our operational planning and capabilities development. These arrangements are not unlimited, but they have improved our situational awareness and helped us in the maturation of USCYBERCOM, and we have a process for managing the relationships and extending collaboration in new areas as needed. Other nations engaged in the fight against violent extremists and in planning for contingencies involving potential adversaries have also expressed their desire to partner with us. We are more limited in what we can do with them.

Let me head toward a conclusion by reflecting on how we can take advantage of the new authorities and changes discussed above in building a cyber force that is even more capable in the future. As we learn how to conduct operations to defend our nation in cyberspace, our experiences are convincing me that we across the Department may need to think again about what a 21st century military organization is. When we created USCYBERCOM we did so with the understanding that our basic principles and values remain sound; our Command was constructed to apply time-honored lessons about the need for clear and unified authorities, for consistent performance at scale, for sustainability, and for a capacity to synchronize a wide range of activities under the rule of law. I marvel at this nation's ability to assemble such resources and operate them in such a powerful manner, and I also marvel at the commitment and skill of our people—Active Duty and civilians alike—who answered the call to service in this new domain. Terrorists can harm us but they have no chance of defeating such a force as long as we remain true to our national values. Nevertheless, terrorism is not the only threat we face. Other states will one day build cyber forces as capable as ours and they may attain comparable capabilities, just as the Soviets achieved rough nuclear parity with us in the Cold War. Military power in cyberspace is already something of a misnomer; cyber forces do not square off against each other and fight pitched battles like armies or fleets. Indeed, cyberspace is unlike the natural domains in many ways, and thus certain metaphors and analogies from the natural domains might just confuse matters and impair judgment. Our new cyber military force is virtually always a partner, as it rarely, if ever, acts alone. Instead, it can constitute the center of gravity for joint and combined, whole-of-government operations that defend the United States and serve the interests of the nation, and its people, and our allies. The President's International Strategy for Cyberspace clearly articulates our policy to exhaust other options short of military force if possible, but it also emphasizes our nation's inherent right of self-defense in cyberspace and all other domains. To exercise that right, our nation must understand how others might use force against us, and to do so we must know how force works in cyberspace, and why our nation must be able at times to depend on military capabilities that act as a nucleus of national power in this domain.

CONCLUSION

Thank you again, Mr. Chairman, Ranking Member Reed, and Members of the Committee, for inviting me to speak to you today. I greatly appreciate the support that you and this Committee have provided to USCYBERCOM, and I am also grateful for the stability that you and your colleagues in Congress have provided to our resource base over the next couple years as we complete the Cyber Mission Force build and shift our focus to sustained operations. We look to your counsel as we partner with the federal government, industry, allies, and the whole gamut of stakeholders who seek to preserve cyberspace as a free, reliable, and secure domain for exchange, commerce, culture, and progress. Our nation determined some years back

that preserving freedom and security in cyberspace will inevitably mean an operational role for the U.S. military in this domain. We at USCYBERCOM strive every day to provide the sort of military capabilities and options that our leadership requires to secure and defend DOD information systems and to protect and further the nation's interests, not only in cyberspace but in all domains where our national security is challenged. I hope you will agree that our people at USCYBERCOM—while their work is not done—have already delivered handsomely on the early promise that you saw and supported. They take pride in their accomplishments, but they do not rest on them. With them, I look forward to tackling our current and future challenges together with you and our mission partners across the government. I am happy to take your questions.

Chairman MCCAIN. Well, thank you, Admiral Rogers.

General Dempsey was asked about our ability to address challenges to this country, and he basically—he stated that we have significant advantages in every major challenge, except one, and that was cyber. Do you agree with General Dempsey's comment, about a year ago?

Admiral ROGERS. I do. The phrase I use internally with him is, "Cyber is one area we have to acknowledge that we have peer competitors who have every bit as much capacity and capability as we do."

Chairman MCCAIN. That, I would say to my fellow members of the committee, emphasizes our need to address this issue in a comprehensive fashion. So, after we finish the defense bill, I would—I will spend a great deal—this committee will spend a great deal of its time on this issue, since the threat is as Admiral Rogers just stated.

You stated, last year in a House hearing, there's still uncertainty about how we would characterize what is offensive and what is authorized. Again, that boils down, ultimately, to a policy decision. To date, we have tended to do that on a case-by-case basis. In other words, do we preempt? Do—if we respond, how do we respond? All of those, it seems to me, are policy decisions that have not been made. Is that correct?

Admiral ROGERS. I guess, Chairman, the way I would describe it is, we clearly still are focused more on an event-by-event particular circumstance. I think, in the longrun, where clearly I think we all want to try to get to is something much more broadly defined and well understood.

Chairman MCCAIN. That you understand, when you detect a—an attack or as to exact—or detect a probable attack—I'm—so, right now, you are acting on a case-by-case basis.

Admiral ROGERS. Sir.

Chairman MCCAIN. Does Russia have the capability to inflict serious harm to our critical infrastructure?

Admiral ROGERS. Yes.

Chairman MCCAIN. Does China have the same capability?

Admiral ROGERS. Some measure of the same capability, yes.

Chairman MCCAIN. How has China's behavior evolved since the OPM breach?

Admiral ROGERS. We continue to see them engage in activity directed against U.S. companies. The questions I think that we still need to ask is, Is that activity then, in turn, shared with the Chinese private industry? We certainly acknowledge that states engage in the use of cyber as a tool to gain access and knowledge. The question or issue we've always had with the Chinese is,

what—while we understand we do that for nations to generate insight, using that then to generate economic advantage is not something that's acceptable to the U.S.

Chairman MCCAIN. Do you agree that the lack of deterrence or repercussions for malicious cyberbehavior emboldens those seeking to exploit the U.S. through cyber?

Admiral ROGERS. Yes.

Chairman MCCAIN. Admiral, we are looking carefully at a consolidation of command, here, as far as your responsibilities are concerned. I believe that the Secretary of Defense will also support such a move, so I will be recommending to the committee that we include that consolidation in the defense authorization bill as we mark up. I think my friend Senator Reed also agrees with that.

Would you agree that probably the issue of cyberwarfare is the least understood by all of our leadership, including in government, executive and legislative branch?

Admiral ROGERS. It's a—it's certainly among the least understood. I think that's a fair——

Chairman MCCAIN. Is part of this problem is that this challenge is rapidly evolving?

Admiral ROGERS. I think that's—that's clearly an aspect of it, the speed and the rate of change, as well as the complexity. It can be intimidating. I'd be the first to acknowledge that many people find this a very intimidating mission area.

Chairman MCCAIN. If you had a recommendation for this committee and Congress as to your significant two or three priorities, what would you recommend?

Admiral ROGERS. In terms of——

Chairman MCCAIN. Of action——

Admiral ROGERS.—cyber, overall?

Chairman MCCAIN.—action that you'd like to see the Congress and the executive branch take.

Admiral ROGERS. I think we clearly need a focus on ensuring, number one, that we've got our defensive house in order and that we're able to defend our systems as well as our networks. We need to think beyond just networks, into our individual——

Chairman MCCAIN. Which——

Admiral ROGERS.—combat and weapon——

Chairman MCCAIN.—which, to me, means a policy, but please go ahead.

Admiral ROGERS. Secondly, we need to continue to generate the complete spectrum of capabilities to provide options for our policymakers, as well as our operational commanders, so, when we have these issues, we've got a series of capabilities that we can say, "Here are some capabilities that we can choose from."

Lastly, I think we've just got to—the other point I'd try to make is, we've got to figure out how to bridge across not just the DOD, but the entire U.S. Government, with the private sector about how we're going to look at this problem set in an integrated national way.

Chairman MCCAIN. Would you also agree that sequestration could threaten you with a hollow force after you have recruited and—some of the brightest minds in America to help you?

Admiral ROGERS. Oh, very much so. I would highlight, in fiscal year 2013, when we shut down the government, I can remember going—I was in a different job at the time, but still I was doing—leading the Navy's cyber effort. As much of my workforce said, "So, explain to me, Admiral, why we should stay with you, if this is what we're going to have to deal with on an aperiodic basis, being told we're going to be furloughed, we're not going to get paid." I can remember telling them, in 2013, "Please stay with us. This—I hope this is a one-time thing."

Chairman MCCAIN. But, sequestration means further hampering of——

Admiral ROGERS. It means further—because everything is—our ability to meet the timelines that we've been given have been predicated on the sustaining of the budgets. If we go to sequestered levels, I will not be capable of generating that capability in a timely way that right now we're on the hook to do.

Chairman MCCAIN. Senator Reed.

Senator REED. Well, thank you, Mr. Chairman.

One of the issues that has been discussed, and I mentioned in my opening statement, is raising Cyber Command to a full unified command. I also noted, and you acknowledged, that only half of Cyber Command's uniformed cyber mission forces are initially capable—IOP—IOC [initial operating capability], I should say. Some critical elements, such as persistent training environment, a uniform platform doesn't exist. Are you, in your mind, mature enough to be a full unified command now? Or——

Admiral ROGERS. Yes.

Senator REED. What would that advantage give you? Or what would that decision give you?

Admiral ROGERS. So, generally when we think about what tends to drive should something be elevated to a combatant command—broadly across the Department, we tend to focus on the imperatives of unity of command, unity of effort, and is it either—in this case, it would be a functional, not geographic——

Senator REED. Right.

Admiral ROGERS.—and, in this case, does the function rise to a global level, and is it of sufficient priority to merit coordination across the entire Department?

The other issue, I would argue, is one of speed. All of those argue—and again, I'm—I just am one input. I realize this is a much broader decision than just Admiral Rogers, and there's many opinions that will be factored in. My input to the process has been, the combatant commander designation would allow us to be faster, which would generate better mission outcomes. I would also argue that the Department's processes of budget, prioritization, strategy, policy, are all generally structured to enable direct combatant commander input into those processes. That's what they're optimized for. I believe that cyber needs to be a part of that direct process.

Senator REED. The other aspect, obviously, is the relationship with NSA [National Security Agency]. There are several options. One is to have separate commanders, one is to have one commander with a dual hat. Or one option, or additional option, is to, at least at a future time, have the option to divide the dual-hat arrangement. Can you comment on that issue?

Admiral ROGERS. So, my recommendation has been, for right now, you need to leave them dual-hatted. Part of that is the very premise that we built Cyber Command, when we created it six years ago, where we said to ourselves, "We are going to maximize the investments that the Nation had already made in NSA, in terms of infrastructure and capability." So, because of that, we didn't have a huge military construction program, for example, for Cyber Command, and put these cyber mission forces, the 6200, in different structures. We said we were going to take NSA's existing space as a vehicle to do that. So, my input has been, for right now, based on the very model we created Cyber Command, where we really, in many ways, very tightly aligned these two organizations, that, at the current time, it would be difficult—not impossible—first to acknowledge that—it would be difficult or less than optimal, in my opinion, to try to separate them now. But, what I have also argued is, but we need to continue to assess that decision over time. You need to make it a conditions-based assessment as to, At some point in the future, does it make more sense to do that?

Senator REED. Part of that is the fact that if you are a unified command, you will be developing alternatives to NSA capabilities——

Admiral ROGERS. Yes.

Senator REED.—exclusive to Cyber Command, so that, at some point, you could have an infrastructure that looks remarkably like NSA, and these synergies you're talking about now aren't operational——

Admiral ROGERS. As important, right. Yes, sir.

Senator REED. One of the issues is that, as a—you depend upon the services to provide you a great deal of resources. In fact, it is really, I think, interesting to note that only half of these identified units are, at least initially, capable, and that there's—doesn't seem to be an intense training effort that's standardized and in place right now. What can you do—what can we do to accelerate these units, in terms of their maturity and their training environment?

Admiral ROGERS. So, if I could, Senator, I'm going to respectfully disagree.

Senator REED. That's quite all right. You don't even—well, you have to be respectful.

[Laughter.]

Admiral ROGERS. Remember, we started this build process in fiscal year 2013. We said that we would finish it by the end of fiscal year 2018, full capability and ready to fight in a high-——

Senator REED. Right.

Admiral ROGERS.—-demand environment. We're pretty much on track, as I have said publicly. If you look right now—in fact, in the last two months, I've actually managed to increase timeliness since the last assessment I did in February, where I publicly had said, based on the data as of the 1st of February, I believe that we'll meet IOC for 91 percent of the teams on time, and that we will meet FOC [Full Operational Capability] for 93 percent of the teams on time. In the two months since then, we're up—I managed to work with the services, and, for IOC, we're up to about 95 percent of the force; and, for FOC, we're at about 93—we're still at 93 percent of the force. So, my only point is, I'm not critical of the serv-

ices, in terms of their generating the force. I think they're making a very good effort, and it's on track. It's not perfect, but it's not—on track.

They've also been very willing—when I've said, "What we need to do is ensure that we have one integrated joint category to how we work cyber," so there's got to be one structure, one training standard—every service has agreed to adhere to that. So, in that regard, I'm also very comfortable what the services are doing.

What I think the challenge for us as I look over the next few years is, we initially focused on those mission teams and the men and women and their training. What experience is teaching is—not unlike other domains, is—and as you both, the Chair and Ranking Member, said in your opening statements, that's not enough. What we're fighting now is, it's the other things that really help enable—we've got to focus more on.

Senator REED. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman.

Admiral Rogers, in December of last year, you published an article saying, "A challenge for the military cyber workforce," and you discussed, as you did in your written statement today, that—the importance of growing and developing and maintaining this force. When you talked about—well, I guess it was the Chairman, in his statement—the 123 teams, where you are right now, and aiming to 133, what comprises a cyber team?

Admiral ROGERS. They come in several different types. There is what we call Combatant Command Mission Teams. Those are aligned with combatant commanders. They are generally designed to create offensive capability, if you were—will.

Senator INHOFE. Yeah.

Admiral ROGERS. There are Cyber Protection—those are about—and that team, CCMTs, Combatant Commander Mission Teams——

Senator INHOFE. Yeah.

Admiral ROGERS.—there are about 65 individuals on a team. If you look at Cyber Protection Teams, slightly different mission, so different structure, different focus—they're at about 39 individuals per team. Each of those two teams, the Combatant Commander Mission Team, the Cyber Protection Team——

Senator INHOFE. Okay.

Admiral ROGERS.—has a small subset of about 23 individuals, what we call Support Teams.

Senator INHOFE. Well——

Admiral ROGERS. So, that just gives you a sense for the——

Senator INHOFE. Sure.

Admiral ROGERS.—range; anywhere from——

Senator INHOFE. Sure.

Admiral ROGERS.—20 to 60——

Senator INHOFE. That's—when you add all that together, that's when you come up with the 6,187.

Admiral ROGERS. Yes, sir.

Senator INHOFE. As was brought out in the Chairman's statement, you really have to know—well, first of all, you're drawing

from institutions that are training these people. This is new. This is——

Admiral ROGERS. Right.

Senator INHOFE. This is brand new to a lot of people, including a lot of people at this table. I know that, in my State of Oklahoma, the University of Tulsa has really made great progress. In fact, your predecessor was out there and working with them. I understand, from Senator Rounds, that a similar thing is happening in South Dakota. So, you've got these kids out there, they're learning this, they're choosing—they're determining what they're going to do for a career.

Now, I think it's a good question when you say—when we ask the question, "Can we really depend on sustaining, in this environment that we're in right now, this—these teams—this number or this workforce, so that individuals out there will—would be aiming their talents toward helping us in your"—because there's going to be a lot of competition for these kids. How confident are you that we're going to be able to maintain the level necessary to attract good people?

Admiral ROGERS. So, experience to date says we're doing a good job in that regard, both for our ability to recruit and retain. What tends to drive that to date, our experience suggests, is the desire of men and women, whether they're civilian or in uniform, to be part of something bigger than themselves, to do something that matters, and to do something on a cutting edge. That, if you will, is really what powers the men and women of the teams.

Senator INHOFE. Yeah.

Admiral ROGERS. I'm always talking to the—my fellow leaders about, "So, what are the advance indicators that we should be looking at that would tell us if that trend is changing?" There are a couple skillsets within the mission force, that I've mentioned separately previously, that I may, in fact, come back to the committee with to say, "Look, there may be some additional measures here—flexibility to hire"——

Senator INHOFE. That would be a good thing to do for the record, to come back, because I'm running out of time here, and I'd——

Admiral ROGERS. Sir.

Senator INHOFE.—a couple of other things I wanted to get to. I agree with you, when you say that the states that we watch most closely in cyberspace remain Russia, China, Iran, and North Korea. At the same time, I notice that the—there is an effort—and this came when our FBI Director, James Comey, was in contact with these people—that they've—they were—China is trying to develop a closer relationship with us, when, in fact, they're the ones that we're going to be watching. You're not entertaining any kind of a close relationship with them that might impair that——

Admiral ROGERS. No, sir.

Senator INHOFE.—area. Okay, good.

Yesterday, in the—an article came out on the GAO [Government Accountability Office] report that says the Pentagon doesn't know who's in charge for responding to a massive cyberattack. They go on to talk about the Northern Command. They talk about what we are doing. They're talking about Homeland Security. You're familiar with this report that came out yesterday?

Admiral ROGERS. No, I'm not.

Senator INHOFE. Oh.

Admiral ROGERS. But, I'm familiar with the broad premise.

Senator INHOFE. Well, okay. Well, the conclusion of the report—and I'll just read this, and—it says, "We believe that, by issuing or updating guidance that clarifies roles and responsibilities of relevant DOD officials, DOD will be in a better position to plan for and support civil authorities in a cyberincident." This is a GAO report, so I—I'd suggest that you look at that and see if we have reached that—their conclusion so far.

Admiral ROGERS. Sir.

Senator INHOFE. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Manchin.

Senator MANCHIN. Thank you, Mr. Chairman.

Thank you, Admiral, for being here and for the work you do. I appreciate it very much.

We face a wide range of cyberthreats from terrorist groups, like the ISIS criminal hackers and spies and all the underlying. In nearly every briefing about our national security, I've asked about the issues of cybersecurity and protecting our power grids. It's a very important issue to me and the amount of power that our little State produces for this country. In the short term, which cyberthreat is most dangerous to the United States? I guess it may—our grid, our food supply, our water supply? What is most vulnerable that we should be working on?

Admiral ROGERS. Power and basic infrastructure, something that always concerns me, because the potential impact on the Nation is very significant, should we have significant issues there. I'd also argue—one sector that I worry about a little bit is—you look at the amount of personally identifiable information that is resident out there in a lot of various—healthcare is a good example, where the amount of data that we have all provided to the medical world that is available out there on all of us and our families—that worries me, about, you know—and that's reflected—and you look at OPM, you look at the Anthem health insurance, large data concentrations are now increasingly becoming an attractive target. Because of the power of big data analytics, massive amounts of data that, 10 years ago, we would have said to ourselves, "No one could ever really comb through that to generate insights or find anything. It's just too large." You sure don't have those conversations anymore.

Senator MANCHIN. I mean, we talk about cyber, and we keep talking about, basically, our corporate—you know, corporate hacking, if you will, for proprietary reasons. Then you look at the military hacking that goes on for our defense reasons, but then you look at just the everyday life——

Admiral ROGERS. Right.

Senator MANCHIN.—that we've come to expect that could be probably disrupted with quite an alarming——

Admiral ROGERS. Yes, sir.

Senator MANCHIN.—alarming concerns.

The other thing I'll—in your testimony, you mentioned that the Guard and Reserve forces are being assigned to all levels of U.S. Cyber Command and the cyber mission forces. Can you elaborate

on what the Reserve component—specifically, the National Guard—bring to the table for the cyber mission?

Admiral ROGERS. Well, you're able—through our Guard and Reserve teammates, you're able to access a set of manpower that potentially is using these same skillsets in their day-to-day work in the private sector. You're able to also access, at times, a very different perspective, which works out very well, which is one reason why, as we were creating this cyber construct for the Department, we were adamant, from the beginning, it needed to be viewed as a total force, that if we were just going to make this an Active-only component, I was not going to optimize the full range of capabilities that are out there. You've seen, in the last six months in particular, the Guard and Reserve capability starting to come online and flesh out, as well.

Senator MANCHIN. The thing I'm—that I'm saying is, I've—the National Guard in West Virginia, we don't——

Admiral ROGERS. Right.

Senator MANCHIN.—have a base, and our Guard is everything to us. Being a former Governor, I understand the importance of our Guard. But, we've been so active as, basically, in aggressive recruiting, and some of our best and brightest and youngest people are coming into the Guard for all the opportunities, especially educational.

Admiral ROGERS. Right.

Senator MANCHIN. It's an area where they can designate and pinpoint for you to bring in some of these really sharp young talents that could help us in defending ourself, cyber. I didn't know if you all look at that.

Admiral ROGERS. Which is—the Guard is doing now.

Senator MANCHIN. They're—and you all are in—okay.

Admiral ROGERS. Well, Senator Grassley and I spend a lot of time talking about, How do we do this in an integrated way?

Senator MANCHIN. Again—well, the other thing—in your testimony, you state that ISIS main cyber effort is focused on propaganda, recruiting, and radicalization of others. Can you elaborate further on this disturbing statement and how have they been successful?

Admiral ROGERS. They've harnessed the power of the information arena to promulgate their ideology on a global basis, to recruit on a global basis, to generate revenue and to move money, as well as coordinate some level of activity on a large, dispersed basis. The challenge I look for, or that concerns me when I look at the future, is, What happens if the nonstate actor—ISIL being one example—starts to view cyber as a weapon system? That would really be a troubling development on——

Senator MANCHIN. In a very simplistic way—people ask, Why can't we shut down that part of the Internet? Why can't we interrupt ISIS's ability to go on social media and attract? Why are we not able to infiltrate that more?

Admiral ROGERS. I mean, I would—the idea that you're just going to shut down the Internet, given its construction and complexity, is just not——

Senator MANCHIN. I've had people ask me——

Admiral ROGERS.—right—going to be realistic.

Senator MANCHIN.—"Can't you just stop it from that area of the world where all the problems are coming from, whether it be in the Syria or in parts of Iraq or Iran, things that we might have some input and control over?" It's not possible?

Admiral ROGERS. It's just not that simple. I wish I could say that there's a part of the Internet that is only used by a specific set of users, but there are all sorts——

Senator MANCHIN. I'm just trying to——

Admiral ROGERS.—users out there.

Senator MANCHIN.—find an answer. But, I think——

Admiral ROGERS. Yes, sir.

Senator MANCHIN.—that question is asked quite a bit——

Admiral ROGERS. Not like that.

Senator MANCHIN.—"Just shut her down, like turning off your telephone." But, it doesn't work that way.

Thank you for your service.

Admiral ROGERS. Sir.

Senator MANCHIN. Any way this committee can help, I'm sure we'll be there for you.

Admiral ROGERS. Thanks, Senator.

Chairman MCCAIN. Senator Sessions.

Senator SESSIONS. Thank you, Mr. Chairman.

Admiral Rogers——

Admiral ROGERS. Sir.

Senator SESSIONS.—thank you for your service. You're, I believe, the right person at a very challenging time, here in the middle of some decisions that have to be made by the United States sooner rather than later.

Our Congress passed—well, Carl Levin was Chairman then—we passed a requirement that the Defense Department evaluate the vulnerability of our systems and to issue a report to how to defend those. That time passed, but we've issued another legislation last year that said, "The Secretary of Defense shall, in accordance with the plan, complete an evaluation of the cyber vulnerabilities of each major weapon system of the Department of Defense not later than December 31st, 2019." So, we've given an additional date there. But, "Not later than 180 days after the date of this enactment"—which I believe would be about May this year, "the Department—the Secretary of Defense shall submit to the congressional defense committees the plan of the Secretary for the evaluation of major weapon systems, including an identification of each system to be evaluated, an estimate of the funding required, and priority among the evaluations." Are you familiar with that? Are we in—on track to—is the Defense Department on track to complete that initial report?

Admiral ROGERS. I am familiar with it. I'm sorry, I am not in the weapon acquisition business, so I'm not the best informed as to the current status. I know the effort is ongoing, because we, U.S. Cyber Command, are part of that broader effort, partnering with AT&L. I—if I could just take that one for the record, sir. I apologize——

Senator SESSIONS. Well, if you would, because this has been going on some time. So, on a bipartisan basis, Congress recognized, several years ago, that our weapon systems—it started out for space, missiles, and antimissile systems being evaluated, and then

we realized large segments of our defense capability are vulnerable, and we've had a broader report. I believe it is important for the Secretary to complete this on time, if not sooner. I would hope that you would look at that.

Admiral ROGERS. Sir.

[The information referred to follows:]

The Department of Defense, to include Service Components, USCYBERCOM and other organizations are working in conjunction to provide a complete response to the fiscal year 2016 NDAA (section 1647), cyber vulnerabilities of each major weapons system report. Any particular details in reference to the report would need to be directed to the DOD CIO office.

Senator SESSIONS. In light of Chairman McCain's questions and Senator Inhofe's questions, I would refer to this GAO report that just came out. The first line of this article is, quote, "The Pentagon does not have a clear chain of command for responding to massive cyberattack on domestic targets in the United States, according to the Federal Government's principal watchdog, GAO." Does that concern you?

Admiral ROGERS. First of all, I haven't read the report, sir, so I'm not informed as to its specifics. I mean, I would argue, hey, I'm always concerned about a clear chain of command and a clear articulation of responsibilities.

Senator SESSIONS. Well, it lists a number of things that do appear to be unclear in how we respond. The Chairman asked you, When do we—aren't we going to need to develop a policy for how to respond to attacks, and what we might do in response, and how to ratchet up responses relevant——

Admiral ROGERS. Right.

Senator SESSIONS.—to the threats that we face? So, I hope that you would look at that.

With regard to the worldwide situation, there's commercial and economic and private companies that are a big part of the entire network of cyber worldwide. Many of those impact our allies, our friends. Many of those could—many companies could be based in countries that are not friendly to us and would like to penetrate our systems. Are you concerned that all of our allies—Asia, Europe—need to be aware of this danger? Are we working to make sure that segments of those systems aren't purchased or impacted by entities that could be hostile to our joint interests?

Admiral ROGERS. So, I share your concern about supply-chain vulnerability, the phrase we use to——

Senator SESSIONS. That's a good——

Admiral ROGERS.—describe the——

Senator SESSIONS.—word.

Admiral ROGERS.—to describe that——

Senator SESSIONS. Supply-chain vulnerability, okay.

Admiral ROGERS.—is—and it is growing in probability, if you will, given the nature of the economic world we're living in now. We have a process within the U.S. Government to address these issues from major purchases, companies, national security priorities. We have a specific process in place for some components of DOD infrastructure, like the nuclear world, for example. But, if you look at its proliferation of the issue generally across both our allies

and ourselves, this is an issue that's only going to get tougher, not easier.

Senator SESSIONS. Could be going on for decades, it seems to me. Do we need to meet with our allies to develop a unified policy to protect our joint systems?

Admiral ROGERS. It is a discussion we have with our allies, and it's much—as you said, this goes across the commercial sector, DOD, government, writ large. It's out there for all of us.

Senator SESSIONS. Well, I thank you for your leadership. There will be a lot of challenges like that in the months——

Admiral ROGERS. Sir.

Senator SESSIONS.—to come. You're at the focal point of a critical issue, and I hope you'll not hesitate to lead and tell us——

Admiral ROGERS. Sir.

Senator SESSIONS.—what we need to do to help you.

Admiral ROGERS. Roger that.

Chairman MCCAIN. Senator King.

Senator KING. Thank you, Mr. Chairman.

Admiral Rogers, I need some clarification of what your responsibilities are in Cyber Command. Are you responsible for protecting this country from cyberattacks on private networks and corporations, or is it simply government networks?

Admiral ROGERS. So, DOD has a responsibility to defend critical infrastructure against events of significant cyber consequence.

Senator KING. So, critical infrastructure, that—for example, in Maine, in May, we had three urgent-care centers that were hacked. We had Maine General Health, which is one of our major healthcare—they were hacked. Is that part of your—what's the definition of "critical infrastructure"?

Admiral ROGERS. No, there are 16 segments that the Federal Government has identified as having significant implications for the Nation's security. But, the second component, I would argue, of the definition I gave you of the mission is not just the sector that was attacked, so to speak, but also the magnitude of the event. In DOD, we use the phrase "significant cyber consequence." The concern being that the Department of Defense is not resourced, nor is it currently tasked with, defending every single computer structure within the United States. We try to identify, Where can our finite resources be best applied? They're focused on those 16 segments that have been designated as critical to the Nation's infrastructure, and then tripped in those circumstances in which the actions against one of those 16 segments reaches "significant cyber consequence."

Senator KING. But, in terms of national defense, we're being—it's death by a thousand cuts. I mean, we're being hacked every day in——

Admiral ROGERS. Sir.

Senator KING.—insurance companies, businesses. Some of it is cyber espionage, as you point out, but some of it is just—some of it's criminal——

Admiral ROGERS. Criminal.

Senator KING.—but it seems to me we need to be thinking about who is responsible. I mean, I understand you don't call out the

Army if there's a criminal in one town. You have local police. But, there's a gap, here. Do you see what I'm saying?

Admiral ROGERS. Yes, sir.

Senator KING. There's a gap in our defenses, because we really don't have the infrastructure of the State police or the local police that would protect local interests when they're being attacked. You have the expertise. There—we have to work out something as between Cyber Command and local law enforcement, if you will, to protect us from these repeated and continuous and escalating attacks.

Admiral ROGERS. Although, if I could, I'd urge us to think more broadly than just Cyber Command. I think the challenge is, How do we harness the capacity and capability that is resident within our government structure, teamed with the capabilities that are resident in the private sector? It's much bigger than just——

Senator KING. Right.

Admiral ROGERS.—don't get me wrong, we're definitely a part of this, but I always urge people—we have got to think much more broadly than——

Senator KING. Well, I think——

Admiral ROGERS.—just the DOD.

Senator KING.—that's a good way to articulate it.

Don't—we keep talking, in these hearings. When are we going to have a well-developed and articulated cyberdeterrence strategy? I emphasize—in my notes, I underlined the word "articulated." It's not deterrence if it's not articulated. But, we need definition of, What is an act of war? What is a proportional response? What is a mutually-assured-destruction situation? This—it seems to me that—is this in the works? If so, when?

Admiral ROGERS. I mean, sir, I don't have a date for you. That's well beyond the mission set of U.S. Cyber Command. I am part of those discussions. I'm the first to acknowledge that. I try to provide an input and just be one voice as to what I think is the direction, broadly, that we need to go. I apologize, Senator, I don't have a specific date or timeline for you.

Senator KING. But, it just seems to me that, as a matter of policy, that we really need—this needs to happen. We've been talking about this as long as I've been on this committee, and we aren't there yet. Something terrible is going to happen, and a lot of people are going to say, "Well, why didn't we have a policy? Why don't we have a deterrent policy?"

Admiral ROGERS. Yes, sir.

Senator KING. So, I would urge you, with counsels of the administration, to push for a sense of urgency on this question, because if we—if all we do is defense, and there's no deterrence, ultimately we're going to lose that battle.

Admiral ROGERS. Yes, sir. It's a losing strategy.

Senator KING. A final point. I know that you talked about this earlier. I—I'm finding it harder and harder to justify your holding two jobs, given the complexity—I mean, this arrangement was created in 2009, which, in technological terms, is a century ago. I just can't—I mean, I understand the relationship between NSA and Cyber Command, but, particularly if we move in the direction, which I think we are, of setting up Cyber Command as its own

independent combatant command, to have the same person trying to run those two agencies, I just think is impractical and almost impossible.

Admiral ROGERS. I've been doing it for two years, to date.

Senator KING. You've been doing it very well.

Admiral ROGERS. So, what I—as I said in my initial comment, I agree that it's something we need to continue to assess. I agree that, in the long run, the, probably, best course of action is to ultimately put both organizations in a position where they're capable of executing their mission in a complementary and aligned way, but in a more separate way. But, the reality is, we're just not ready to do that today, I believe. Now, don't get me wrong. If I am ordered or directed, I get paid to make things happen, and I will execute it to the best of my ability.

Senator KING. But, I take it you agree that we should move—Cyber Command should be its own combatant command.

Admiral ROGERS. I do, sir.

Senator KING. Yes, sir. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Subject to the will of the entire committee, that would be my intention. Senator Reed and I would propose that on the defense authorization bill. Right, Jack?

Senator REED. I think so, sir. I think that's something we're going to consider. But, I think it's valuable to have Admiral Rogers' comments today and to consider them as we go forward.

Chairman MCCAIN. Thank you.

Senator Fischer.

Senator FISCHER. Thank you, Mr. Chairman. I look forward to the discussion on raising Cyber to its own combatant command, and I look forward to our discussions, as a committee, on the importance of cybersecurity for this country.

Admiral Rogers, in your prepared statement, you mentioned the cyberattack on Ukraine's power grid, and you also note that you have seen cyberactors for more than one nation exploring the networks of our Nation's critical infrastructure. Do you believe that our national mission teams possess the necessary skills relating to industrial controls and SCADA [Supervisory Control and Data Acquisition] systems to be able to stop or to recover from an attack on our power grid?

Admiral ROGERS. We have the skills. The challenge for us, at the moment, is one of capacity. What I mean by that is, in the two years I've been in command, I have yet to run into a situation where we didn't have the skillset to apply against the problem. But, the challenge at the moment, because we're still in the midst of that build, is, sometimes that skillset is embodied in an incredibly small number of people. If we had multiple events simultaneously, for example, that gets to be—under the—where we are right now, you snap the chalk today, so to speak, capacity really is the greater concern to me than capability, if you will, if that makes sense.

Senator FISCHER. Well, I understand your demands on the force to exceed that capacity, but, as you add those capabilities, how are you going to prioritize the duties and the responsibilities that you're going to have? How do you plan to prioritize placing that—

building competency with our industrial control system? Is that going to be something you're going to focus on in the near term, or is it going to take a backseat to maybe some of the other areas that you're looking at for the cyber mission forces?

Admiral ROGERS. So, it's something we're doing right now. I would also highlight that the very construct of the force, by creating a separate section of the force that is focused purely on defending critical infrastructure—it was designed to account for that. How do you make sure you prioritize this capability and ensure that at least an element of the force that we are building is focused like a laser on the defend-the-critical-infrastructure mission set? It's a carved-out, separate entity. It's the national mission force, we call it. General Nakasone is the—my component commander doing that.

Senator FISCHER. Do you have a plan to work with services, then, on building that——

Admiral ROGERS. Oh, yes, ma'am.

Senator FISCHER. Is it near completion? You heard Senator King ask about policy. We've been asking about policy for a long time. We don't have a policy, but—so, if we don't have a policy, how are we going to develop plans?

Admiral ROGERS. Well, my—remind people is—look, even as we're trying to get to the broader issues that you have all raised, much of which is outside the immediate mission set of Cyber Command, hey, look, our mission is: generate capacity and capability to ensure that we're ready to go as those broader issues are being addressed. So, we're trying to deal with the deterrence piece by generating the capabilities that we think would be part of that deterrence discussion, by generating the defensive capabilities that we think would be part of that deterrent discussion. I don't want to wait for everything to fall in place that—we just can't afford to do it that way, as perfect as it would be, in some ways. But——

Senator FISCHER. I agree with you, there—we don't have time to wait.

Admiral ROGERS. Yes, ma'am.

Senator FISCHER. When we look at the Department, what level of communication do you have with different communities within the Department—say, the—with regards to acquisition or installations—to ensure that the items we purchase or the facilities that we're building are able to take those threats that we're looking at from cyber into account?

Admiral ROGERS. I would tell you the acquisition piece is one of the areas that we still need a lot of work. It's not because people aren't working hard. But, I've always been struck by the analogy, we would never buy a ship, a tank, an aircraft with the—without the operational vision driving exactly how we designed it, built it, structured it. For much of our networks and infrastructure, that has not historically been our model. We just built those. We bought those—we focused on efficiency and price. We didn't really focus on operational impact, and we really didn't think, at the time, that we'd be dealing with a world in which intruders—foreign actors, nonstate actors—would be using those systems as access points to materially degrade our ability to execute our missions as a depart-

ment. We just didn't anticipate that, decades ago. That's the world we're in now. We're trying to overcome——

Senator FISCHER. Well, it's——

Admiral ROGERS.—literally——

Senator FISCHER.—it's happened in private industry.

Admiral ROGERS. Right, decades of investment we're trying to overcome.

Senator FISCHER. Do you—last question—do you have any knowledge if our adversaries have targeted any infrastructure on our military bases?

Admiral ROGERS. Yes.

Senator FISCHER. Thank you very much.

Admiral ROGERS. Yes, ma'am.

Chairman MCCAIN. Senator Blumenthal.

Senator BLUMENTHAL. Thanks, Mr. Chairman.

Thank you, Admiral Rogers, for your extraordinary and distinguished service in so many roles over so many years.

I want to focus on the challenges of recruiting young people in an age where the best and the brightest who have knowledge in this area have so many opportunities, many of them highly paid and challenging in their professional issues. Young Americans are entering the workforce with computer technology that has been part of their entire lives, not so much for us of a certain age, but for them, yes. I wonder if you could tell us how successful you and the, obviously, incomparably important forces under your command have been in recruiting and maintaining talent in this time, and what we can do to help.

Admiral ROGERS. I'm very comfortable with where we are on the uniformed side. The same things that lead a young man or woman in our Nation to decide they want to pick up a rifle and take on that challenge leads men and women to decide they want to put on a uniform and pick up a keyboard. That has not been the biggest challenge. The area that I've told the team we probably need to take a greater look at is on the civilian side of this, because we have got—our vision is, you've got to create a workforce that is both Active and Reserve military as well as civilian component to it so we get that breadth of expertise that you've referenced.

While we're meeting our targets right now on the civilian side, as I've said, there's a couple skillsets already where I think I'm going to have to come back to the committee to say, "Look, I could—probably need some help here with—can I come up with some different processes or options that would make things more attractive to, particularly, some very high-end, very small number of skillsets that I don't have huge numbers of, but they're incredibly valuable for us?" That's one area where I'm thinking I'm probably going to have to come back. I have to work this with the Department first, but my experience is telling me, "You know, Mike, we need to step back and take a look at this piece of it."

Senator BLUMENTHAL. Is there sufficient—are there sufficient resources devoted to research, the personnel available to supervise that research, and, in effect, planning for the future?

Admiral ROGERS. Right. I mean, there's—I'm not going to pretend for 1 minute that you have all the people and all the money and—that you would like. It's—I would argue—characterize it as

reasonable right now. It's not a major issue, in the sense that, as a commander, I've said to myself, "Wow, we've got a significant deficiency here that will impact our ability to execute the missions." I haven't seen that.

Senator BLUMENTHAL. I know that you indicated earlier that you haven't read the GAO report.

Admiral ROGERS. Right. Right.

Senator BLUMENTHAL. But, I wonder, focusing on the local capability, and particularly on the private sector, the infrastructure segment that you mentioned earlier in some of your conversations with my colleagues—transportation, financial, electric—how well are they doing in protecting themselves?

Admiral ROGERS. I would—if you look across the 16 segments in the private sector that have been designated as critical infrastructure, in terms of impact on the Nation's security, I would argue some are a little—some are ahead of others. I'd probably put—financial, for example, not surprising, in the sense that—has access to more resources than some, has come to the conclusion that cyber potentially calls into question their very business model, since it's built on the idea of trust and the ability to move funds globally simultaneously through these transactions, if you will, that we all believe in and trust. On the other hand, there are some industries—I—and, in their defense, I look at them, and they're quick to remind me, "Hey, remember, our business model is different. We're a regulated industry." For example, "In order to generate resources to apply to increase our cyberdefense, our cybercapabilities, the only way for us to do that is raise rates. For example, most consumers, not really enthusiastic about that. Most regulatory bodies not necessarily overly enthusiastic about that at the moment."

Senator BLUMENTHAL. Those regulated industries would be electricity——

Admiral ROGERS. Right. Power is an example.

Senator BLUMENTHAL. Yeah.

Admiral ROGERS. There's a couple of others that fall into that.

Senator BLUMENTHAL. Are there unregulated industries that are also in need of improvement that you would put at the bottom of that list of readiness?

Admiral ROGERS. There are some. I've—think I've publicly previously talked about—healthcare, for example, is one of the 16 segments I look at, and I—that's an area probably that needs a broader top-to-bottom look, although I'm the first to acknowledge it's really outside my immediate mission area, and I don't bore into it every day. But, as I look at where I'm—potentially we're going to be tasked to provide our capabilities to partner with, it's an area that I pay attention to.

Senator BLUMENTHAL. Thank you very much.

Admiral ROGERS. Sir.

Senator BLUMENTHAL. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Rounds.

Senator ROUNDS. Thank you, Mr. Chairman.

Admiral Rogers, first of all, thank you for your service.

I find it interesting that, as you work your way through this, you're in a brand new area and you're trying to determine how to respond and how to protect. It seems that when you lay this out—

and you say, like, you have 16 different segments within the realm that you're responding to. Fair to say that they break out into either information or data systems and operating systems, in terms of the way that we look at what the data is or the different systems that we're looking at as being vulnerable at——

Admiral ROGERS. Right.

Senator ROUNDS.—at a data system being the collection of information on individuals and operating systems being those systems perhaps necessary for the infrastructure within our country? A fair way to break out?

Admiral ROGERS. I guess that's fair. To be honest, Senator, I've never really thought of it that way. Not that that's a bad way.

Senator ROUNDS. The——

Admiral ROGERS. I just haven't——

Senator ROUNDS. Well, the reason that I ask is, it would seem that, while information systems would contain material, information that would be of a private nature, perhaps, trade secrets that may very well be information on an individual, such as the information that we lost at the Federal level when our Federal systems were hacked. At the same time, we have an operating system out there for the utilities. We have operating systems out there for dams. We have operating systems for nuclear power plants. Clearly, in those areas, if someone with intent could get into an operating system, they could do significant amount of damage, perhaps bodily injury, as well.

Admiral ROGERS. Yes.

Senator ROUNDS. Fair to——

Admiral ROGERS. Yes.

Senator ROUNDS.—look at it?

Based upon that, when you look at your role and the role of Cyber Command, do you see this as protecting—do you see them different, in terms of how you protect, or do you see your role different with operating systems versus data and information-collection systems?

Admiral ROGERS. So, our protection scheme, if you will, is based on two different pieces of strategy. The first component of our strategy is—our intent is to go into foreign space to stop the attack before it ever reaches those systems. The second component of our strategy is to apply defensive capability working directly with each of the individual elements, if you will, to say, "If that fails, we'd also like to work with you on how you might shore up your systems and your vulnerability."

The other point I want to make sure I articulate—and I probably should have done a better job this morning—is, as a reminder, U.S. Cyber Command and DOD, writ large, provide our cyber capabilities in the defense of critical infrastructure in the private sector in partnership and in support of DHS. DHS has overall responsibility in the Federal Government for the provision of government support to the private sector when it comes to cyber. I'd—I don't want people thinking, "Well, it's just Cyber Command and just the private sector." There's a broader set of players out there that we integrate with and we support as we execute the mission.

Senator ROUNDS. An attack in either case would be done in milliseconds, fair to say? So, unless we have the system in place and

we know whether or not we are there to respond or to correct, to protect, in advance, we don't know whether or not we're going to be able to do it in time. At that point, then we simply respond afterwards. Would you say that, today, we have systems in place to appropriately protect—for lack of a better term, I'm going to call, the operating systems and the information systems that we have—do you feel that the protocols are there? I'm going back to what Senator King was——

Admiral ROGERS. Right.

Senator ROUNDS.—alluding to earlier. I—I'm not sure that we have the definitions prepared yet to allow you to respond immediately, within milliseconds, unless we talk about it and we lay it out. Is it there today?

Admiral ROGERS. So, across the board, with every single component in the private sector, no, it's not.

The other point I would make is, cyber is no different than other domains, in the sense that the importance of intelligence to provide us insight as to what is likely to be coming at us gives us the knowledge and insight, the warning, if you will, to anticipate and act in advance. It's every bit as true for the CENTCOM [Central Command] commander as it is for me in Cyber Command. Warning continues to be critical for both of us.

Senator ROUNDS. Today, if our forces were aware of an attack on them, they have the ability to respond. But, if it was property or entities that are within the United States, do you have the ability to respond today if it is not a military but a civilian or a civil target?

Admiral ROGERS. So, is there a process? Yes. Is it something that I can do automatically, instantaneously? No.

Senator ROUNDS. Then, it—in that case, then it would have to happen first, then, because, for all practical purposes, the attack will be instantaneous.

Admiral ROGERS. Or we have to get the warning in advance, that importance of intelligence. It——

Senator ROUNDS. But, even if you get the warning in advance, in terms of—it would have to be enough time for you to get out and to have a political discussion, for all practical purposes, about whether or not you can respond——

Admiral ROGERS. Again, it would depend by the scenario, because there are some elements where we've got mechanisms in place for the application of capability, and it's just a process, if you will, as opposed to a broad——

Senator ROUNDS. But, not one that——

Admiral ROGERS.—political decision.

Senator ROUNDS.—could be done in milliseconds.

Admiral ROGERS. But—right, no. I'm not going to pretend for 1 minute that it's something you're going to do in milliseconds.

Senator ROUNDS. Thank you. Thank you, sir.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator McCaskill.

Senator MCCASKILL. Thank you, Mr. Chairman.

Thank you, Admiral, for being here.

Admiral ROGERS. Senator.

Senator MCCASKILL. Let me start with your acquisition personnel. Some of the saddest stories of waste have been in the acquisition of IT within the military—frankly, within government. A lot of that has had to do with, you know, knowing what you need to buy, when you need to buy it, and when legacy systems need to be scrapped, and how nimble can you be with off-the-shelf—I'm not sure the military has been a great example of that flexibility and the ability to move with the technology. So, I think these acquisition personnel are pretty important. Do you have the ten in place that are supposed—that we authorized in order for you to make the wisest acquisition decisions possible, in light of a history littered with serious mistakes and lots of—billions and billions of dollars wasted?

Admiral ROGERS. Well, first, just a reminder. Remember, Cyber Command, I operate and defend; I don't buy. You have been kind enough—the committee and the Congress has been kind enough to provide, if you will, an initial capability to do us. We're in the process of hiring those ten individuals that you have authorized. I am very mindful of—as I remind the team, "It is about generating outcomes, guys. That's why we're granted this authority, and that's what we need to be mindful of. I'm not interested in spending money for the sake of spending money. It's about generating capabilities that directly impact our mission in a material way."

Senator MCCASKILL. Well, I would be interested in how you are acquiring, with more detail, if you——

Admiral ROGERS. Yes, ma'am.

Senator MCCASKILL.—would provide it—how you are finding the right acquisition personnel, and how competitive are we in finding the right acquisition personnel? Because, in many ways, I think that's the key to the kingdom. If we're going to have the capabilities in this space, it—a lot of it is, you know, people being trained, but a lot of it is also——

Admiral ROGERS. Oh, yes, ma'am.

Senator MCCASKILL.—the underlying——

Admiral ROGERS. You have to buy the right——

Senator MCCASKILL.—the capabilities.

Admiral ROGERS.—capabilities.

Senator MCCASKILL. I just—I'm really worried about getting the right people——

Admiral ROGERS. Yes, ma'am.

Senator MCCASKILL.—making those decisions. So, I would like to stay updated in that progress.

Senator MCCASKILL. What kind of coordination is—your command have at this point with our NATO [North Atlantic Treaty Organization] allies, with Israel, with our Arab allies? I'm particularly interested in any coordination and cooperation you have with NGA [Naitonal Geospatial-Intelligence Agency].

Admiral ROGERS. So, I'm not going to publicly, in——

Senator MCCASKILL. Obviously.

Admiral ROGERS.—unclassified forum, go into the specifics. I would only tell you, we partner with—we have a handful of nations right now we have a very direct, very real relationship with, with respect to capabilities, real-world operations. I won't go into the specifics of the who.

One of the challenges I find is, cyber, like any other mission area, we have got to prioritize. So, when I look at foreign partnerships, I ask, Where is the greatest return for us, as a Department, as the DOD, and where is the greatest return for us, U.S. Cyber Command, in terms of the ability to execute our mission? We've got to—I spend almost as much time with a discussion with the team about what we're not going to do as what I discuss what we are going to do, because I always remind them, particularly since we're still in the midst of building this capability out, "Prioritization, prioritization, prioritization, guys." We can't do everything. We've identified an initial set of foreign partners, if you will. Those partnerships today are generating capability that we're actually using today.

Senator MCCASKILL. Great. Maybe in a classified setting, I could get more information.

Admiral ROGERS. Yes, ma'am.

Senator MCCASKILL. What is the ratio of civilian versus military within the Command at this point?

Admiral ROGERS. It's about—we're trying to build to about 80 percent military, 20 percent civilian. If you looked at it today as a snapshot, it's probably, off the top of my head, 70/30—70 percent military, 30 percent civilian.

Senator MCCASKILL. What about contractors? What is the ratio on contractors? What is your goal on contractors? Because this could be an area—and, of course——

Admiral ROGERS. Right.

Senator MCCASKILL.—you know, underlying that is a concern about the actual screening of contractors. What is your ratio now of contractors to DOD, and what do you want it to be, going forward?

Admiral ROGERS. We probably, right now—apologize, I'm trying to do the math in my head—it's probably about 25 percent—we have an—over and above the government, civilian, and military—we have an additional 25—off the top of my head, we have about an additional 25 percent in the contractor base.

Senator MCCASKILL. It—and is that where you would like to be, going forward? Do you see more reliance on contractors, going forward?

Admiral ROGERS. I'm a little bit leery of over-becoming reliant on contractors. Why? Because I try to remind people, cyber is a domain in which we conduct a wide range of military operations. In accordance with the Law of Armed Conflict, those operations need to be conducted by military personnel. So, I'm not trying to minimize the role of contractors. I just try to remind the team, "It's not one-size-fits-all, so we've got to step back and ask ourselves what's the right allocation." I'm pretty comfortable right now. I wouldn't argue that it's among my highest priorities, in terms of increasing the ratio of contractors. I'd argue, right now, probably priority number one, manpower-wise, as I've said, is the civilian piece. I'm very comfortable with—we're tracking and we're going the right way in the uniformed piece. The civilian area is where I know I'll be paying more attention to in the coming year.

Senator MCCASKILL. Thank you, Admiral.

Admiral ROGERS. Yes, ma'am.

Chairman MCCAIN. Senator Graham.

Senator GRAHAM. Thank you for your fine work, Admiral. Can you hear me?

Admiral ROGERS. Yes, sir.

Senator GRAHAM. Okay. What are the threats, nation-state-wise, in terms of who we're most threatened by?

Admiral ROGERS. I would argue Russia and, again, the—probably, in terms—if you look at capability, the other four that we have publicly acknowledged we pay great attention to: China, Iran, North Korea—and then the nonstate actors, the other category where I look, that could be a game-changer, were the—some of the dynamics to change.

Senator GRAHAM. On the terrorism side, could you give us the top couple of terrorist organizations you're worried about?

Admiral ROGERS. It's not that I don't know it. In an unclassified forum, I——

Senator GRAHAM. Okay, we won't go down that road.

Admiral ROGERS. If I could. Thank you, sir.

Senator GRAHAM. On the criminal side, what areas of criminality do you worry the most about? What countries?

Admiral ROGERS. I would argue, right now, Russia probably has the most active criminal element, with the most—with the greatest capability.

Senator GRAHAM. Do you think the Russian government's doing anything constructive, in terms of regulating their criminal activity in cyber?

Admiral ROGERS. I would only say it doesn't appear to be getting much better.

Senator GRAHAM. What about Iran? Has Iran gotten better in the last year, in terms of their cyber activity?

Admiral ROGERS. Yes.

Senator GRAHAM. Are they less threatening?

Admiral ROGERS. I apologize, I'm not sure——

Senator GRAHAM. Are they less threatening or just more capable?

Admiral ROGERS. I'd argue they're increasing their investment, they're increasing their level of capability. We have not seen the same level of activity from them that we have seen historically in the past. I have seen some of that same activity directed at other nations and other groups around the world.

Senator GRAHAM. They're improving their capability?

Admiral ROGERS. Yes, sir.

Senator GRAHAM. Do we know if any of the money they're getting from the Iranian nuclear deal is going into their cyber upgrades?

Admiral ROGERS. I don't know for a fact.

Senator GRAHAM. Okay. Is it fair for the country to establish, as a policy, cyber dominance over enemies, that we want to be the—have a dominance in this area of warfare?

Admiral ROGERS. I mean, I want to think—I would argue we want to have the same level of capability in supremacy in cyber as we have articulated that we want in every other——

Senator GRAHAM. Okay. Well, that's——

Admiral ROGERS.—domain——

Senator GRAHAM. I think that's a good goal——

Admiral ROGERS.—for our Nation.

Senator GRAHAM.—so let's march down that path. I associate myself with Senator King about what we need to do as a Nation.

Admiral ROGERS. Sir.

Senator GRAHAM. The Navy. The difference between the Chinese navy, the Russian navy, and the American Navy is pretty wide?

Admiral ROGERS. Yes, sir.

Senator GRAHAM. In the cyber arena, how close is it?

Admiral ROGERS. I have publicly stated before, the Russians, I would consider in cyber, a peer competitor. China, not in the same place, but rapidly attempting to get there.

Senator GRAHAM. So, the gap between the dominance we have on the seas in cyber is not nearly——

Admiral ROGERS. Not nearly the same.

Senator GRAHAM. Okay. When it comes to Iran, when you compare their air force to our Air Force, what's the gap?

Admiral ROGERS. Oh, significant.

Senator GRAHAM. Okay. In the cyber arena, less significant?

Admiral ROGERS. Less significant, but it's still an area of significant advantage for us, right now.

Senator GRAHAM. Are the Iranians trying to close it?

Admiral ROGERS. Oh, they are.

Senator GRAHAM. Okay. So, from a NATO point of view, you're familiar with Article 5, an attack against——

Admiral ROGERS. Sir.

Senator GRAHAM.—one is an attack against all. Is there any such concept in the cyber arena?

Admiral ROGERS. You've heard NATO publicly talk about the fact that they believe Article 5 applies to all domains of warfare.

Senator GRAHAM. Do they have any rules of engagement that would identify what a cyberattack is?

Admiral ROGERS. They're probably in the same arena we are: still trying to work our way through that.

Senator GRAHAM. When do you think we'll arrive at a conclusion to Senator King's question?

Admiral ROGERS. Boy, I don't know. The——

Senator GRAHAM. What's the biggest impediment to us getting there? Is it the Congress? Is it the——

Admiral ROGERS. No.

Senator GRAHAM.—DOD?

Admiral ROGERS. It's as much, in some ways, as—and again, this is just Mike Rogers' opinion—it's as much, in some ways, from my perspective, as, "Well, this is just an intellectual exercise. It—this is something we can afford to"——

Senator GRAHAM. The Department——

Admiral ROGERS.—"to push down"——

Senator GRAHAM.—of Homeland Security is responsible, basically, for protecting us in the financial/service/power arena, our civilian targets.

Admiral ROGERS. Sir.

Senator GRAHAM. You're responsible for protecting the military infrastructure.

Admiral ROGERS. We provide support to that commercial——

Senator GRAHAM. That's right.

Admiral ROGERS.—infrastructure, if requested.

Senator GRAHAM. But, you're also responsible for going on offense. The——

Admiral ROGERS. Yes, sir.

Senator GRAHAM.—DHS [Department of Homeland Security] is not going to attack a foreign nation. You would.

Admiral ROGERS. Yes, sir.

Senator GRAHAM. So, how could we, as a Nation, given the threats that we face in the cyber arena, not really have a good answer as to, What's the impediments to creating rules of engagement?

Admiral ROGERS. I apologize, sir. You really need to speak to the policy side.

Senator GRAHAM. Yeah, but you're an operator.

Admiral ROGERS. Yes, sir.

Senator GRAHAM. So, who do you talk to about, "Hey, guys, let's see if we can get there"?

Admiral ROGERS. So, I'd—the Secretary of Defense or the Office of the Secretary of Defense.

Senator GRAHAM. How do they respond?

Admiral ROGERS. I think, intellectually, we all realize that that's what we need to do. It's generating that consensus, I think——

Senator GRAHAM. Is there anything Congress is not doing that you would like us to do to help resolve this issue?

Admiral ROGERS. No, I can't argue that it's something that Congress has failed to do. I don't see that.

Senator GRAHAM. Thank you.

Admiral ROGERS. Sir.

Chairman MCCAIN. Senator Hirono.

Senator HIRONO. Thank you, Mr. Chairman.

Admiral, I know that you talked a little about cyber teams in response to our—to earlier questions. I think the idea to leverage our outstanding National Guard capabilities and capacity in establishing many of these cyber teams is a good idea. As you and your colleagues look to establish additional cyber units in the future—and while I'm sure you are looking at this region, meaning the Pacific region, I ask that you look closely at the needs of the Asia-Pacific region. In Hawaii, for example, as you well know, we have PACOM [Pacific Command], NSA Hawaii, various component commands, and other agency regional officers that are—offices that are likely targets for cybercriminals and—you know, as we focus on the rebalance to the Asia-Pacific, obvious. I wanted to get to a question.

Last September, the U.S. and China did agree that neither government would support or conduct cyber-enabled theft of intellectual property. Now that we are six months down the road, would you say that China is living up to this agreement?

Admiral ROGERS. Well——

Senator HIRONO. I don't know how specific the agreement was, frankly, but, you know, it seemed like a good idea for the two countries to enter into that kind of a dialogue and discussion. But, really, what is happening with regard to that agreement?

Admiral ROGERS. So, if I could, what the agreement said would—was, neither nation would engage in that activity for the purpose of gaining economic advantage for their private sector. We continue to see Chinese activity in this regard. The million-dollar question

is, Is that activity for governmental purposes or is it being then passed from the government to the private sector? It—from my mind, the jury is still out in that regard. Its activity level is somewhat lower than prior to September of 2015.

Senator HIRONO. But, is there any way that we can determine whether China is engaging in such activity? Really, are there any parameters? Is there anything that we measure to determine whether these—this agreement is being adhered to?

Admiral ROGERS. Yes, ma'am. In an unclassified forum, I'm not going to get into the specifics of how we go about doing that, but yes, ma'am.

Senator HIRONO. So, one of the areas of—thank you. Maybe in another context, we can get to some of those questions. With regard to our ability to support a—our cyber capabilities, training and retention, really important. In that regard, STEM [Science, Technology, Engineering and Mathematics] education is critical. Can you just talk a little bit more about what you are doing to—any collaborations, partnerships you are doing with universities or community colleges to train a workforce for us?

Admiral ROGERS. So, let's just take Hawaii as an example. Today, as a matter of fact, in Kunia, the adjutant general for the Guard in Hawaii is meeting in the Kunia complex with U.S. Cyber Command, NSA, and elements from across the island on Oahu to try to look at—to include the academic sector—How do we generate a more capable workforce both to meet Guard requirements as well as to meet Cyber Command, NSA, and other elements? How can we partner more effectively in aligning that capability to deal with issues of common interest to us; in this case, on Oahu, specifically, and the State of Hawaii, in—more broadly? You see that same—Hawaii is an area where we probably are—have gone further than others, but you can see that same type of activity for U.S. Cyber Command right now with what we are doing with a handful of universities across the United States, from the West Coast—Carnegie Mellon—there are some West Coast universities, Tulsa, you heard, one—there's, I want to say, something on the order of 60 to 100 right now, between NSA and Cyber Command. This is one area where NSA and Cyber Command tend to partner together a lot.

Senator HIRONO. Obviously, that needs to continue, because our cyber capability is something that is going to be an ongoing——

Admiral ROGERS. Right.

Senator HIRONO.—effort.

You mentioned the importance of the private sector in a whole-of-government plus, you know, outside-of-government approach to cybersecurity needs. So, how do you envision the private sector's role?

Admiral ROGERS. So, what we've tried to do at Cyber Command is—what I think the private sector brings is technical innovation, intellectual innovation, if you will—just broad knowledge of capabilities—and alternative ways to look at problems, if you will. Those are, at a macro level, the three things—when I look at the private sector, I say, "Wow, you really could add value for us in that regard."

What we've done to date is, we've created what we call the Point of Partnership in Silicon Valley, where I've placed a very small ele-

ment on the ground. The part that's interesting to me is, I did not want U.S. Cyber Command people out there. Instead what I wanted was one individual who's a U.S. Cyber Command individual, and then I wanted to harness the power of Reserve individuals who are currently in the ecosystem in the Valley, working in their day-to-day jobs. We've just started that since last summer. That's starting to work out very well for us. It gives us a chance to get a sense for what technical innovation is going on out there. We approach them with different problem sets and say, "Hey, here's an issue we're still trying to work our way through. How are you handling this? Or would you give us some suggestions on how we might deal with it?" I'm trying to see if we can replicate that model that we currently have in place in Silicon Valley in other areas. I'm looking at the East Coast next, kind of as an example of that, probably somewhere in the Greater Boston Metro area next.

Senator HIRONO. So, it sounds like more of an informal kind of arrangement right now, and maybe, going forward, you would want to maybe institutionalize——

Admiral ROGERS. Right.

Senator HIRONO.—this kind of collaboration with the private sector.

Admiral ROGERS. Yes, ma'am.

Senator HIRONO. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Tillis.

Senator TILLIS. Thank you, Mr. Chairman.

Admiral Rogers, I don't envy you with the job that you have, the complexity and then the additional challenges that we have, as the Chairman has said, about sequestration, things that are on the horizon that you have to worry about.

The—you know, and in listening to the discussion, I think one thing that's very important is, we're never going to have the perfect weapon. This is not—you know, absent the United States coming up with a game-changing offensive or defensive capability of the scale of the Manhattan Project, you can't possibly get inside the decision cycles of the state actors, organized crime, terrorists, and other people. If—and when you think about decision cycles in this realm, you think about—every single day, you get new malware, viruses, other technology added to your PC to deal with new threats that didn't exist a day or two or a week before. So, I'm trying to get my head around how you really even segregate your scope of responsibility, which is largely, you know, the vulnerabilities of, say, the DOD or with—however you would——

Admiral ROGERS. Right.

Senator TILLIS.—like to define your scope, ability, and how you differentiate that from the broader private-sector threat. I mean, you've got 28 million small businesses. You have close to 19,000 businesses with 500 employers or more. You have distributed public-sector infrastructure, whether it's electric, water, gas. If—and the concern that I have is, what we have right now are the equivalent of guerrilla sniper fire or mortar attacks. We haven't seen—and I think that we will see someday—a nation-state or organized crime or terrorist organization literally be in a position to execute a multi-pillar attack that, if they're smart—and they are—what they will do is something to disrupt you, and then disrupt your

ability to react to it by attacking the private sector, which is also integral to your supply chain.

So, you know, how are we looking at this on a global basis and understanding that, as they continue to increase their abilities, they're going to figure out a way, on a multi-pillar basis, to go after communications infrastructure, a supply-chain infrastructure, healthcare, electric, whatever public infrastructure may be vulnerable—how do we actually get these things to coalesce, versus finding out we create—we get a good job—we do a good job in DOD, we create the Maginot Line, and they just go around it and disrupt you from a different direction?

Admiral ROGERS. So, you have very succinctly articulated much of the problem set and the challenges of how you operate in this environment, because the—these arbitrary boundaries that we traditionally consider, "Well, this is a DOD function and this is a private function, this is an inherently government"—cyber just blurs these lines. So, even as I focus on the DOD mission, it's one reason why I've argued we have got to think so much more broadly about this problem set.

Now, within the DOD arena, it's one of the reasons why, for example, if you look at our exercise in training regime that we've put in place, we try to do that, not just within the DOD, but across a breadth of the private sector. CYBERGUARD is our annual exercise. It'll be in June of this year. We pick a different segment, if you will, every year. We're going to do the power segment in this year's exercise. I think it's something like 20 different corporations will be exercising with us—the Guard, State, local——

Senator TILLIS. Well, that's—you know, that's what I'm getting to. It's almost as if your military exercises have to involve all of these players——

Admiral ROGERS. Sure.

Senator TILLIS.—so that they have a better understanding of their vulnerabilities and the nature of the attack that would occur in cyber.

The other question that I had is, To what extent are we looking at State and local governments as a way to at least—in North Carolina, I served in the legislature, and we were talking about what we could do to work on cyberthreats. I saw it also as an economic advantage. If States became particularly good at grid-hardening or at securing the physical presences and cyberthreats within their State borders, they actually create an economic advantage for people to set up business in——

Admiral ROGERS. Right.

Senator TILLIS.—those States. So, to what extent are we trying to lead and help make this problem a little less difficult at the Federal level by making sure that the States and local governments are stepping up their game as a part of the effort?

Admiral ROGERS. So, it's one of the reasons why there's a big Guard component to this effort, to ensure we can also try to address the State and local aspects of this.

Senator TILLIS. Thank—I have a million different questions. I think——

Admiral ROGERS. Sure.

Senator TILLIS.—what I'll probably do is see if I can schedule some time——

Admiral ROGERS. Oh, yes, sir.

Senator TILLIS.—in my office to go over a number of other ones. We may have to do some in a secured setting.

Thank you very much.

Chairman MCCAIN. Senator Reed.

Senator REED. Thank you, Mr. Chairman.

One of the issues is, in fact, sort of the services being able, within their resources, to fully develop the units that they will detach to, essentially, or provide for your operational control, since you won't have your organic units. Can you give an assessment of sort of where we are—where they are, in terms of doing that, across the services?

Admiral ROGERS. So, that really goes to the heart of readiness, if you will. One of the—so, in September, when I was with you, one of the things I said then, during that session, was that I thought one of the reasons why 16 was going to be such a big game-changer was, I thought we'd get more involved in the total breadth of capability sets, which we are. Then, the other reason was because we needed to shift from a focus on IOC and FOC, the generation of capability, to actual readiness, "Okay, guys, are we actually ready to employ this?" So, we have spent the last six months working our way through, How do you define readiness in the cyber arena, down to the individual team level so that I, as a commander, have an awareness of what the true capabilities of the force is, and, using the same mechanisms that we use to assess readiness across the DOD, I can provide policymakers and decisionmakers a true picture of, "This is just—here is what this force is really capable of doing."

We've just started doing that. I've gone through two strawmen so far with the team. We're going to do a third and final one this summer. Then, by the end of the summer, in September, I will start providing to the DOD, on a quarterly basis, by team, "Here's where we are in terms of true readiness."

Chairman MCCAIN. Is the nightmare scenario that one of these nations acquires the capability to shut down satellites?

Admiral ROGERS. I mean, that is a—there's two scenarios that really concern me. One is the physical shutdown and interdiction of capability. The other scenario that I——

Chairman MCCAIN. But, explain the first one.

Admiral ROGERS. If you were to shut down—look at it from—first, from a narrow DOD perspective—because much of what we rely on for our enablers as a Department are commercial infrastructure—power, our ability to move force, for example. If you were able to try to take that away or materially impact the ability to manage an air traffic control system, to manage the overhead structure and the flow of communications or data, for example, that would materially impact DOD's ability to execute its mission, let alone the broader economic impact for us as a Nation.

The other concern I have is, to date, most penetrations of systems that we've seen by actors have either been to steal data or to do reconnaissance. What happens if the purpose of the intrusion becomes to manipulate the data? You can no longer believe what

you are seeing. Think about the implications of that, if you couldn't trust the military picture that you are looking—that you're using to base decisions on, and let alone the broader economic impacts for us as a Nation.

Chairman MCCAIN. Senator Shaheen.

Senator SHAHEEN. Thank you, Mr. Chairman.

Thank you——

Admiral ROGERS. Senator.

Senator SHAHEEN.—Admiral, for being here and for the job that you're doing every day to protect the country.

I wanted to, first, start with a statement you made earlier, I think, to a question from Senator McCain about, Does Russia have the capacity to inflict serious harm to our infrastructure? You said yes. Do we have capacity to inflict serious harm to Russia's infrastructure?

Admiral ROGERS. In an unclassified hearing, I'd rather not get into that, if I could, ma'am. I don't——

Senator SHAHEEN. But, I—let me put it in the context of—I assume there is some mutual deterrence that goes on when we're talking about some state actors.

Admiral ROGERS. Again, it's a lot more complicated than just a yes or a no.

Senator SHAHEEN. Okay. Well, I hope that we will be able to ask that question in a——

Admiral ROGERS. Yes, ma'am.

Senator SHAHEEN.—classified setting.

I had the opportunity, over the last 2 weeks, to visit Estonia, which is, as you know, one of the most wired countries——

Admiral ROGERS. Right.

Senator SHAHEEN.—in the world, and also the—probably the first victim of a cyberattack by a nation-state, by Russia. I had the opportunity to visit the Cyber Center that's been accredited by NATO and to hear them talk about how they think about cyber issues. Can you talk a little bit about how CYBERCOM works with our NATO allies?

Admiral ROGERS. So, I've been in Tallinn, myself. I've been to the Center. I was just in Brussels, for example, in December, and I—as U.S. Cyber Command, I addressed the North Atlantic Council, you know, as one of the member nations. I was asked to talk to the leadership of the alliance about implications of cyber and how might the—just one voice, I'm the first to acknowledge that—how might the alliance work its way forward as we're trying to deal with the cyber arena. Cyber Command, I tried to partner both with the alliance as a whole as well as specific member nations on specific issues within the alliance. What I suggested to NATO is, I think the real key is, you've got to get the defensive house together, number one, and then, secondly——

Senator SHAHEEN. Explain a little more what you mean when you say that.

Admiral ROGERS. Much like we've seen on the U.S. side, I've said, "Look, I see NATO is spending a lot of time—and it's a good thing—focused on defense of NATO's fixed infrastructure," but I also remind them that I think there's value in spending time thinking about—for example, as NATO is creating additional capability

of different, additional force constructs to be able to apply traditional capability in a much faster way. I've also been part of discussions where I remind them, "Even as you're generating that additional force, that additional capability, you need to be thinking about, What are the cyber vulnerabilities and the cyber defense implications of that? Because we can spend a lot of money on generating new capability, but if it's got inherent vulnerabilities that quickly negate its ability to actually be used, that's not a good situation for the alliance or for us. We're dealing with the same challenges. I've had those discussions with the alliance, writ large.

Senator SHAHEEN. How do we increase their participation in training exercises like CYBERFLAG?

Admiral ROGERS. So, for CYBERFLAG, for example, we have some NATO nations that participate in CYBERFLAG, which is U.S. Cyber Command's largest exercise. I won't say we have all 28 member nations at CYBERFLAG. We—over time, you'll see more and more nations participating. One of the things I've talked to NATO about, although we haven't yet fleshed out the how, is, How might we go about taking a look at a cyber exercise or training regime? I'd be the first to admit, this is just a preliminary discussion. But, when I was there in December, I said, "Hey, look, I think this is something we need to be thinking about."

Senator SHAHEEN. One of the things that I was really interested in, in Estonia, was hearing about their Estonian Defense League.

Admiral ROGERS. The Defense League.

Senator SHAHEEN. You were talking about—earlier in your testimony, about the effort to take advantage of the expertise in the private sector to help us as we're looking at cyber issues. I was very interested. One of the things I heard was that the reality is, we can't completely prevent a cyberattack. What we've really got to do is be prepared to respond to that attack in the way that is most effective and most—and fastest. They were talking about their Defense League as one way that they are able to do that. Is that something that—recognizing that we're probably not talking about—is—but, is that what you're looking at when you're talking about the teams that are being set up to help respond?

Admiral ROGERS. It's a little different, in the sense that the idea behind the Cyber League for Estonia is, you have private citizens——

Senator SHAHEEN. Right.

Admiral ROGERS.—who volunteer—on a voluntary basis——

Senator SHAHEEN. Right.

Admiral ROGERS.—will apply themselves at specific problem sets as they emerge, kind of after hours, after work, on their own time. That's kind of the model for the Cyber League in Estonia. They use that to augment their government and——

Senator SHAHEEN. Right.

Admiral ROGERS.—private-sector capabilities.

On the U.S. side, for us in the DOD, that Cyber League, I would argue, is a cross, for us in our structures, between the digital service arena that DOD is creating as well as the kind of Guard construct, although the difference is, when the Estonians do it, you're doing it purely on your own time, purely as assistance, not as a

uniformed member of the Guard and Reserve, so to speak. So, it—it's not exactly the same, but the thought process that——

Senator SHAHEEN. Right.

Admiral ROGERS.—the idea of trying to tap that is similar.

Senator SHAHEEN. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Ayotte.

Senator AYOTTE. Thank you, Chairman.

I want to thank you, Admiral Rogers, for your service——

Admiral ROGERS. Senator.

Senator AYOTTE.—to the country.

I wanted to just ask you a basic question. You have substantial responsibility in your position. What keeps you up at night? What are the thing—what is—you're most worried about that we need to understand?

Admiral ROGERS. Well, let me be bit of a smartass and say, based on the workload, I have no problem sleeping.

[Laughter.]

Admiral ROGERS. But, secondly, there's three things, generally, I highlight. Number one is actions taken against critical infrastructure in the United States, damage or manipulation. Number two, what happens when actors start to no longer just enter systems to do reconnaissance or to steal, but actually to manipulate or change data so that we no longer can believe what we're seeing? The third and final thing in the cyber arena is, What happens when nonstate actors start to use cyber as a weapon system and they want to use it as a vehicle to inflict pain and—against the United States and others?

Senator AYOTTE. To the third point you just made about nonstate actors using cyber as a weapon system, how grave of a threat is that to us, currently?

Admiral ROGERS. I would argue that it is not—you know, it's one of these, you say it and then tomorrow something will change. But, today what I would tell you is, I have not seen groups yet make huge investments in this, but I worry that it's a matter of time, because it wouldn't take long. One of the challenges of cyber—in addition, we've previously talked today about how it doesn't recognize boundaries. It doesn't take billions of dollars of investment. It doesn't take decades of time. It doesn't take a dedicated workforce of tens of thousands of people, like you see most nation-states deal with. The problem is that cyber is the great equalizer in some ways.

Senator AYOTTE. What are the greatest risks, to the extent you can describe them here, to our critical infrastructure, the first issue that you——

Admiral ROGERS. I just worry—in that regard, what I worry is—based on the accesses and the activity that I've seen of some nation-state actors out there, what happens if they decide that they want to, for some period of time, disrupt the things we take for granted, the ability to always have power, pumps——

Senator AYOTTE. Power system——

Admiral ROGERS. Power systems.

Senator AYOTTE.—financial system.

Admiral ROGERS. To move money. I mean, if you take a look at the scenario in the Ukraine on the 22nd of December, imagine had a scenario like that unfolded in the United States. I'm not going to argue that someone's capable of making the United States totally go dark, but I would argue there's capability there to cause significant impact and damage.

Senator AYOTTE. That's why you discussed, in your opening testimony, the need for the coordination between government, private——

Admiral ROGERS. Yes, ma'am.

Senator AYOTTE.—sector, and across the whole of government.

Admiral ROGERS. Right.

Senator AYOTTE. I wanted to ask you—the law that was changed by Congress, in terms of the NSA, the holding of information——

Admiral ROGERS. Oh, the——

Senator AYOTTE.—the USA Freedom Act——

Admiral ROGERS.—USA Freedom Act. Yes, ma'am.

Senator AYOTTE.—can you give us an update on what is happening with that, and whether that's working, and any concerns you have? I think it's an important question——

Admiral ROGERS. Right.

Senator AYOTTE.—for us to check back in with you on.

Admiral ROGERS. Yes, ma'am. So, if I could, in an unclass hearing, I'm not going to go into great detail. What I would say is, and what I've said to the intelligence oversight committees, we have been able to comply with the Act, and to do it on time. There has been some level of slowness, but that—in terms of difference from the old system and the new system—but that——

Senator AYOTTE. Terms of how quickly you can get information?

Admiral ROGERS.—that's—right, that's—that time duration is minutes or hours, it's not days or weeks. So, it hasn't yet gotten to the point where I've felt I've needed to come back to the Congress or the administration and say, "Look, I'm seeing a significant material impact on our ability to generate timely insights." Because I made that commitment. I said if I saw that, then I believe I owe it to the Nation to make that point. I have not seen that yet.

Senator AYOTTE. But, there's no doubt that it's taking longer, in some ways.

Admiral ROGERS. In some ways, it takes longer.

Senator AYOTTE. Well, I think it is important for you to come to us with that, because, you know, given that minutes and hours can make a difference——

Admiral ROGERS. Yes, ma'am.

Senator AYOTTE.—when it comes to terrorist attacks, and preventing them, and taking action, I think this is really important for all of us to understand, given the world that we are living in.

I wanted to ask you a final question about the JCPOA, or the Iran deal.

Admiral ROGERS. Yeah, the Iran——

Senator AYOTTE. In there, there's a provision that said that the U.S. must cooperate with Tehran through training and workshops to strengthen Iran's ability to protect against sabotage of its nuclear program. Admiral Rogers, from a cyber perspective, has the

U.S. helped Tehran strengthen its ability to protect against sabotage of its nuclear program——

Admiral ROGERS. Ma'am, I can't speak——

Senator AYOTTE.—this agreement?

Admiral ROGERS.—I cannot speak for the U.S. Government as a whole. I can tell you U.S. Cyber Command has not participated in any such effort.

Senator AYOTTE. Okay. Thank you.

Admiral ROGERS. Yes, ma'am.

Chairman MCCAIN. Senator Kaine.

Senator KAINE. Thank you, Mr. Chair.

Thank you, Admiral Rogers.

Admiral ROGERS. Senator.

Senator KAINE. I have missed some of the discussion. I don't want to be needlessly repetitive, but I met—I want to go back to an interchange that you had with the Chair in the opening questions that he asked—I met recently with a senior military leader, who kind of tried to, basically, summarize his sense of things, and he said, "We have O-plans, but no strategy." I've been thinking about that. I think, in your back-and-forth with the Chair, you talked about—and I think others may have asked you about this a little bit—this notion that we are kind of reacting case-by-case to cyberattacks, and kind of deciding, in each instance, what we want to do. But, the development of a broader doctrine, whether it's, you know, what will a deterrence policy be that we might communicate, how do we view a cyberattack under Article 5 of NATO, in terms of triggering a collective self-defense—the collective defense obligation—that we're assessing those things, but we're kind of not at the endpoint of answering a lot of those questions. Could you talk to us about the kind of doctrinal development process and—in working on these questions, they're so important. What might we expect from the Pentagon, from Cyber Command, in our interaction—in our oversight—in terms of the development of doctrines that have greater clarity and that aren't just kind of pragmatically reacting?

Admiral ROGERS. Right. So, you'll see, in the DOD cyber strategy—for example, we've got a broad overarching framework for the Department about how we are going to both develop capability and then employ it. We're part—Cyber Command is part of the broader dialogue within the Department about, How do we align the capabilities of the force with the world that we're seeing today? One of the arguments that we've made over the course of the last six months is, we need to take an element of the cyber capability we're generating and focus it very much in the deterrence piece. How do we shape, potentially drive, opponent choices and behavior before we get to the crisis scenario? We're in the early stages of that, but I'm very heartened by the fact that we now have broad agreement that that's an important part of our strategy, and we need to be doing that. So, we're just starting the early stages of that journey.

The Department participates in the broader dialogue within the U.S. Government as to about how—from a national policy perspective, how are we going to move forward in addressing some of the issues that you have all raised today? Meanwhile, for me, as U.S. Cyber Command, what I remind our team is, "We know that capa-

bility is going to be part of that deterrence strategy, both offense and defense. Guys, that's what we get paid to do. We have got to focus on generating that capability today." So, we can't wait for this broader discussion to complete itself. That's just a losing strategy for us. So, that's kind of been, if you will, the focus for U.S. Cyber Command, at the operational level that I and the team really focus at.

Senator KAINE. Let me ask you another question. I think Senator Shaheen may have asked this before I came into the room, with respect to NATO. But, another item that's very common in this committee as we talk—look at the postures of other commands, is joint training exercises. India does more joint training with the United States than any other nation. We have marines deployed throughout Africa in these Special Purpose MAGTFs, doing training of African militaries. What is our posture, vis-a-vis sort of partners, in the cyber area, in the training that we do together, in the development of——

Admiral ROGERS. Right.

Senator KAINE.—you know, joint resiliency strategies?

Admiral ROGERS. So, we do some level of training with key allies. One of the challenges for us, quite frankly, is, How do you maximize capacity? So, it's all about prioritization. You cannot do everything you would like to do with every nation that you would like to do it. So, part of our strategy is, How do you focus the greatest return? What are the nations that you want to start with? So, we have done that.

The other challenge I find is—and this is part of an ongoing internal discussion for us—based on where we are in the journey right now, I can't do so much with the external world that it negatively impacts our internal ability within the Department to generate. Because, unlike some mission sets, where we literally have decades of infrastructure, capability, capacity, and experience, we don't have that in the cyber arena. So, the same force and capability I'm using to help train and partner with foreign counterparts, I'm still building every day. So, that's part of the challenge for us right now. I don't think it'll be as much an issue in the future as that capacity fully comes online, but we're not there yet.

Senator KAINE. We trained aviators out of other service branches, and then we created an Air Force Academy in 1954 and decided, okay, we're going to, you know, train aviators at—not that we don't train aviators in the other service branches. I think——

Admiral ROGERS. Right.

Senator KAINE.—Senator McCain may have had some training somewhere in his past. But, we created an Air Force, you know, after World War II. I've wondered about whether the cyber domain would eventually become so significant that there may be the need to consider creating a dedicated Cyber Academy, much like the Air Force was created in the '50s. Now the question is, you can train cyber folks everywhere and have them percolate throughout the service branches, or you can focus on a particular cyber expertise, and then those folks could go into the different service branches. Have—has there been any discussion or thought about that?

Admiral ROGERS. I mean, it's been a discussion. My input to that discussion has been, I'm not, right now, based on my experience

and what I see, a proponent of that approach. Because my concern is, to maximize effectiveness in cyber, you need to understand how it fits in a broader context. I watch, at times, when I deal with elements in our own workforce who are incredibly technically savvy, incredibly smart about other eaches of the mission, and yet, when I try to remind them, "Remember, we're applying this as part of a broader strategy and a broader context"—when you don't understand that broader context, you're just not—in my experience, you're not as effective. That's my concern about that approach. It'll start to really make us very, very——

Senator KAINE. Siloed.

Admiral ROGERS.—narrow and siloed. I'm just concerned about the potential implications of that.

Senator KAINE. Great. Thank you.

Thanks, Mr. Chair.

Chairman MCCAIN. Senator Cotton.

Senator COTTON. Admiral Rogers, thank you for appearing again before——

Admiral ROGERS. Sir.

Senator COTTON.—the committee.

If I heard you correctly, you testified to Senator Ayotte that your three main fears were threats to our critical infrastructure, the ability to manipulate systems such that we might not have faith in their operations, and, third, nonstate actors using cyber as a weapon against the United States. Is that an accurate——

Admiral ROGERS. Yes, sir.

Senator COTTON. Yeah. Are——

Admiral ROGERS. Yes, sir.

Senator COTTON. Are either the Islamic State or al Qaeda able to do any of those three things at this point?

Admiral ROGERS. I haven't seen them yet, but my concern is, that's now.

Senator COTTON. So, the Islamic State has a reputation for being very effective online. Can—what we infer, then, is online recruiting and propaganda is a distinct skillset from the use of cyber as a weapon——

Admiral ROGERS. Yes, sir.

Senator COTTON.—against things like electrical power grids and so forth.

Admiral ROGERS. Yes, sir.

Senator COTTON. How hard would it be for a nonstate actor, like the Islamic State or al Qaeda, to develop that skillset? Is it nothing more than recruiting the right person?

Admiral ROGERS. It would not be difficult. It's about recruiting the right people with the right focus, but it would not—it's certainly not beyond their ability if they decide—I believe it's not beyond their ability if they made that decision.

Senator COTTON. When we think about other potential nonstate actors, are those—do those groups that have that capability or are approaching the capability tend to be associated with state actors?

Admiral ROGERS. In some cases, yes, but not in all. Not in all.

Senator COTTON. Okay.

I want to turn now to the ongoing debate about encryption. I think data security and cybersecurity is obviously critical in the

modern world. Most people in this room probably have a smartphone in their pocket. Even my 70-year-old father finally turned in his flip phone and got a smartphone recently. We keep emails, text messages, phone calls, financial information, health information, and many other sensitive data——

Chairman MCCAIN. He's ahead of Senator Graham.

[Laughter.]

Senator COTTON.—on our phones. So, I think data in cybersecurity is essential. I also think physical security is essential.

Admiral ROGERS. Right.

Senator COTTON. I'd hate to see Americans get blown to pieces because we had an imbalanced priority of cybersecurity over physical security. How do we strike that balance as a society?

Admiral ROGERS. I—my first comment would be, I don't think it's either/or.

Senator COTTON. I don't either. There has to be some kind of——

Admiral ROGERS.—my argument would be, we don't serve either viewpoint particularly well when we cast this as, "Well, it's all or nothing, it's either/or." My view is, over time, we have been able to integrate ground-changing technology in the course of our Nation, and to do it in a way that enables the Nation, under the right circumstances, with the right level of control, to be able to access that. For me, my starting position is, What is it that is different about this that would preclude that from applying here? I just don't personally see that, even as I acknowledge there's no one simple answer, there's probably no one silver bullet. It's not going to be a one-size-fits-all. But, I look at the innovation and the can-do approach that we have as a Nation to this, and I'm thinking we can't—we can solve this.

Senator COTTON. Like, for instance, a decades-old law known as the Communications Assistance for Law Enforcement Act——

Admiral ROGERS. Act.

Senator COTTON.—which tells telecom companies of any size that if they want to construct a telephone system in this country, it has to be susceptible to a wiretap, pursuant to a court order, if a court finds probable cause to order a wiretap against a terror suspect or a human trafficker or a drug dealer or so forth. Similarly, we all expect privacy in our bank accounts, but banks, obviously, must maintain systems in which they turn over bank account information, subject to a court order, against, say, a potential money launderer. Is there any reason our society should treat data and tech companies differently from how we treat telephone companies and banks?

Admiral ROGERS. I mean, that's clearly a much broader issue than Cyber Command. I won't get into the good or bad, so to speak, but I—like you, I'd just say, "Look, we've got frameworks in other areas. Why can't we apply that here?"

Senator COTTON. Okay.

These questions have been about the larger debate about encryption, going forward, the way smartphones are designed, the way messaging systems are designed. There was a case recently, involving Apple and the FBI and the San Bernardino shooter, in which the FBI requested Apple's assistance to override a feature of an iPhone, Apple refused, the FBI apparently found a third party

capable of doing so and has withdrawn that case. Should Americans be alarmed at this kind of vulnerability in a—such a widely used device?

Admiral ROGERS. The way I would phrase it is, vulnerability is an inherent nature of the technical world that we live in today. If your desire is to live in a world without vulnerability, I would say that is probably highly unlikely.

Senator COTTON. Do you know if we have shared that vulnerability with Apple—the United States——

Admiral ROGERS. As U.S. Cyber Command, I—sir, I apologize, I don't know.

Senator COTTON. Thank you.

Chairman MCCAIN. Admiral, one other point. We know for a fact that Baghdadi is sending young men into the refugee flow to commit acts of terror wherever they can locate. Is it true, or very likely, that they also know of a Web site to come up on, secure, so that they can communicate back with Baghdadi and his tech——

Admiral ROGERS. Yes.

Chairman MCCAIN. So, right now—there was a media report that 400 young men had been sent into the refugee flow. I would assume, then, that at least some of them have—are armed with a Web site to come up on once they get to a preferred destination so that they can coordinate acts of terrorism.

Admiral ROGERS. A Web site or an encrypted app. Yes, that's probably likely.

Chairman MCCAIN. That's a bit concerning, isn't it?

Admiral ROGERS. Yes, sir.

Chairman MCCAIN. So, what should we be doing to counter that?

Admiral ROGERS. So, I——

Chairman MCCAIN. Besides take out ISIS.

Admiral ROGERS. I think we need a broader national dialogue about, What are we comfortable with? It's not either/or. Because we have got to have security, and we've got to have safety and privacy. At the moment, we're in a dialogue that seems to paint it as, well, it's one or the other. I—as the dialogue we just had with Senator Cotton, I don't see it that way.

Chairman MCCAIN. We know of a direct threat of an attack in Europe or the United States and a technical capability to enhance their ability to commit this act of terrors.

Admiral ROGERS. Yes, sir.

Chairman MCCAIN. Isn't that a pretty tough—so, we need a national conversation? Do we need more hearings? Do we need to urge the administration to come up with a policy? What are our options, here?

Admiral ROGERS. Well, the worst-case scenario, to me, is, we don't have this dialogue and then we have a major event. In the aftermath of a major event, we decide to do something that perhaps, in the breadth of time, we step back and ask ourselves, How did we ever get here?

Chairman MCCAIN. I don't think there's any doubt that's a likely scenario.

Admiral ROGERS. That is what I hope it doesn't come to. But, to date, for a variety of reasons, we just have unable—been unable to achieve that kind of consensus. But, we have got to figure out how

we're going to do this. You don't want a law enforcement—I believe you don't want a law enforcement individual or an intelligence individual dictating this, just as I don't believe you want the private sector, a company, dictating this. This is too important, from my perspective.

Chairman MCCAIN. I don't—we—is awareness of this threat important to—for the American people to know how serious this threat is?

Admiral ROGERS. Yes.

Chairman MCCAIN. Senator King.

Senator KING. Mr. Chairman, it—hearing this dialogue and the discussion you have just been having, it strikes me it underlines the foolishness of continuing to be governed by budget decisions made six years ago, when this threat was nothing like the magnitude that it is today. Here we are, dealing with a major new threat and trying to fit it within—to shoehorn it within a budget structure that was—that clearly did not take account of the fact that we've got a major new threat, and a serious one, that we're facing that's going to take resources to confront. It just—I just can't help but make that point, that it underlines the fact that we're trying to—we're governed by decisions made at a time when circumstances were very different than they are today.

Chairman MCCAIN. Well, I thank Senator King. But, Admiral Rogers has already made it clear, I think, in this testimony, that sequestration will prevent him from carrying out completely the missions that he's been tasked with.

Is that correct, Admiral?

Admiral ROGERS. Yes, sir. My greatest concern, if you went to sequestration, would be the impact on the workforce, particularly the civilians, who would argue, "So, is this what I want to be aligned with?" That concern—I can replace equipment. It takes us years to replace people.

Chairman MCCAIN. There is a real likelihood that, if we continue the sequestration, that you will have to—you will not be able to continue to employ these outstanding and highly selected individuals.

Admiral ROGERS. Yes.

Chairman MCCAIN. You know, sometimes, Admiral, I do not want the American people to see what goes on at these hearings. The old line about laws and sausages. But, I certainly wish the American people could hear and see your statements that you're making today rather than, as you just indicated, an attack, and then we always overreact, that that's just what democracies are all about.

I thank you for your good work, but I also want to thank you for your straightforward answers to questions that were posed by the members of this committee. We thank you.

Hearing is adjourned.

[Whereupon, at 11:32 a.m., the hearing was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JEFF SESSIONS

U.S. CYBER VULNERABILITIES REPORT

1. Senator SESSIONS. Admiral Rogers, what is the status of the Department of Defense report that was directed in the fiscal year 2016 NDAA on the cyber vulnerabilities of each major weapons system?

Admiral ROGERS. The Department of Defense, to include Service Components, USCYBERCOM and other organizations are working in conjunction to provide a complete response to the fiscal year 2016 NDAA (section 1647), cyber vulnerabilities of each major weapons system report. Any particular details in reference to the report would need to be directed to the DOD CIO office.

QUESTIONS SUBMITTED BY SENATOR KELLY AYOTTE

NATIONAL GUARD

2. Senator AYOTTE. What is the role of the National Guard in the Cyber National Mission Force (CNMF)?

Admiral ROGERS. Guard and Reserve forces are an integral part of the Cyber Mission Force total force solution and are providing trained and ready personnel and teams in support of current operations as well as on-demand surge capacity. USCYBERCOM continues to work with the Services to ensure National Guard and Reserve personnel are fully integrated at all echelons from the highest levels of our USCYBERCOM headquarters to our Cyber Mission Forces. Of the 64 assigned team members for the 24 National Mission Team (24 NMT), 12 billets will be Air National Guard members.

Additionally, USCYBERCOM, through the Services, looks to leverage the National Guard and Reserve and their unique authorities and civilian skills in achieving its Defend the Nation mission. The Reserve Components, being community based, have insight into local, state, and regional emergency operations, and can be enabled to provide an immediate local response to help shape the incident response during national level events.

SUPPORT TO CIVIL AUTHORITIES DURING CYBER INCIDENTS

Senator AYOTTE. The Government Accountability Office (GAO) published a new report this month regarding the roles and responsibilities for defense support of civil authorities during cyber incidents. GAO found that the Department of Defense (DOD) has developed overarching guidance, but has not clearly defined roles and responsibilities for cyber incidents.

According to GAO, "DOD officials stated that the department had not yet determined the approach it would take to support a civil authority in a cyber incident and, as of January 2016, DOD had not begun efforts to issue or update guidance and did not have an estimate on when the guidance will be finalized."

3. What is your response to this GAO report?

Admiral ROGERS. I agree with the GAO report findings that DOD has not clearly defined the roles and responsibilities or determined an approach for support to civil authority for cyber incidents. The DOD is well accustomed to providing Defense of Civil Authorities (DSCA) support to Federal, state, tribal and local authorities in a variety of missions during catastrophic natural or man-made events. However, our society's increasing dependence on information technology and the availability of cyberspace should also compel us to expand missions to include DSCA support within the cyber domain. The basic DSCA guidance detailed in DOD 3025.18 provides an overall framework for DSCA operations. Within this general guidance, we believe that the DOD will be able to respond to a wide variety of events, which could include appropriate DSCA activities in cyberspace. However, more specific guidance regarding DSCA in cyberspace would be beneficial.

The growing pains associated with understanding how to provide domestic cyber support will subside as experience is gained in this new mission space. That is one of the objectives of the USCYBERCOM sponsored CYBER GUARD exercise series. These exercises bring Federal, DOD, State and Industry stakeholders together to better understand how DSCA will occur in cyberspace.

4. Senator AYOTTE. What must be done to clarify DOD roles and responsibilities when it comes to supporting civil authorities during cyber incidents?

Admiral ROGERS. Recently, USCYBERCOM, the Joint Staff, the Office of Secretary of Defense and U.S. Northern Command held staff talks to rationalize and/

or harmonize the Cyber Incident Coordination Policy with the National Incident Response Framework. Incident response in cyberspace should not be materially different than that of any other domains. Additionally, the command will continue to explore roles and responsibilities for supporting civil authorities in response to cyber incidents during the annual CYBER GUARD exercise series. CYBER GUARD brings together DOD, federal, state, and industry stakeholders to better understand Defense Support of Civil Authorities in cyberspace to include how cyber incident response fits in with a broader DOD response effort.

5. Senator AYOTTE. What role do you see the National Guard playing in support for civil authorities during cyber incidents?

Admiral ROGERS. The National Guard is, and will always be, a key enabler in support for civil authorities during all domestic response actions. The National Guard has unique state-based structures and authorities that provide great flexibility and application at the state and local level to respond to varying types of incidents, cyber included. The National Guard Cyber Protection Teams implemented to date, provide the States with a joint trained capacity that could be utilized by their respective Governors, as first responders during a cyber-event. For example, these teams, given their State level affiliations, could work directly with the Joint Terrorism Task Force and cyber forces the FBI has, and with DHS to provide additional technical capacity for resilience and recovery at the Federal, State and Local levels.

QUESTIONS SUBMITTED BY SENATOR JACK REED

CYBER OPERATIONS AGAINST ISIS

6. Senator REED. At the end of February, 2016, Secretary Carter announced that we would be using cyber capabilities offensively against ISIS. He said that our goal would be to, quote, "Black these guys out. Make them doubt their communications, make it impossible for them to dominate and tyrannize the population in the territory they are and just whack away with this as we are whacking away with everything else. We have to put an end to this fast."

Please provide your assessment of the effectiveness and impact of each of the lines of effort that Cyber Command is pursuing, alone or in partnership with other commands, pursuant to the Secretary's direction.

Admiral ROGERS. [Deleted.]

QUESTIONS SUBMITTED BY SENATOR BILL NELSON

U.S. CYBER COMMAND RELIANCE ON THE NATIONAL SECURITY AGENCY

7. Senator NELSON. Admiral Rogers: There is a concern that U.S. Cyber Command's Cyber Mission Force (CMF) might still be too reliant on the National Security Agency (NSA) for tools, infrastructure, and training, and too reliant on signals intelligence (SIGINT) for military operations in cyberspace. Do you share that concern, and what steps have been taken over the last year to address it?

Admiral ROGERS. I do not share that concern. The CMF is still evolving and building and the partnership between U.S. Cyber Command and NSA is a positive one. At this stage of maturity in our force build, I see the relationship with NSA as enabling the operations of U.S. Cyber Command. The leadership, headquarters commands, and CMF across the entire CMF are identifying requirements as they conduct operations and take away lessons learned from exercises that inform the future cyber force. I have incorporated some of these issues into formal requirements, such as Unified Platform and Persistent Training Environment as described in the President's Budget Request for fiscal year 2017. Additionally, the Department recognized the need to provide an operating environment for the CMF separate from and in addition to use of NSA tools and infrastructure. The tools and infrastructure (i.e., access, payload, platforms) needed to conduct military operations are described in the fiscal year 2017 President's Budget Request. The support provided by NSA continues to be essential to the execution of cyber operations by the CMF and prudent given the still-evolving nature of cyber requirements and the resource environment we are operating in.

QUESTIONS SUBMITTED BY SENATOR MARTIN HEINRICH

ICS AT DOD INSTALLATIONS

8. Senator HEINRICH. Admiral Rogers—A couple months ago at an open hearing before the Senate Intelligence Committee, we discussed the vulnerabilities of electrical generation and water and wastewater systems across civilian infrastructure. I'd like to follow-up on that and ask about the security of our infrastructure at military bases. What steps has Cyber Command taken in the last couple of years to secure Industrial Control Systems (ICS) at military installations, and does this issue continue to be a top priority for you?

Admiral ROGERS. Yes, working toward securing Industrial Control Systems (ICS) at military installations is a new focus area and we are developing capabilities at U.S. Cyber Command. We have improved our ability to detect adversarial presence, increased resiliency within DOD control system networks, and aligned cyber mission forces with critical infrastructure and key resources. In June 2015 DOD CIO's Terry Halvorsen and AT&L's Frank Kendall and myself co-signed the "DOD Cybersecurity Campaign Memo," outlining the requirement to establish a working group with the chief focus on cyber securing ICS in weapons, logistics, medical systems and installations. In December 2015 we completed the development, test, evaluation, and refinement of the Advanced Cyber Industrial Control System (ACI) Tactics Techniques and Procedures (TTP) for DOD ICS. It was specifically designed to enable managers of ICS networks Detect, Mitigate, and Recover from nation-state-level cyber-attacks. Collaborating with the Services and CIO, we have enabled ICS owners and operators access to dozens of government and commercial best practices and standardized process via a DOD knowledge service portal. This summer DOD will publish cybersecurity criteria for planning, design, construction, and modernization of facility-related ICS (will apply to MILCON). Lastly, over the past year we have conducted several assessments at various locations and can share the results in a classified forum.

9. Senator HEINRICH. Two 4-star Navy admirals recently sent a letter to the Secretary of Defense asking that more attention be paid to ICS security across military infrastructure, and called for clear ownership policies and additional investments in detection tools and processes. Admiral, how is Cyber Command working with other DOD components to secure these systems, and do you believe sufficient resources have been made available to address the problem?

Admiral ROGERS. U.S. Cyber Command is working with the DOD Chief Information Officer and Service Components to increase ICS security at military installations, and partnering with the Department of Homeland Security to secure DOD Industrial Control Systems dependent on civilian infrastructure. Concerning resources, we are currently reviewing our policies, processes, and capabilities for securing DOD Industrial Control Systems in order to establish priorities, align resources, and identify additional resources as needed.

10. Senator HEINRICH. In your opinion, should there be a defense-wide effort to secure these systems, or is it better to observe a distributed authority approach and leave efforts to each of the Services?

Admiral ROGERS. DOD Chief Information Officer, Office of Secretary of Defense, Acquisitions, Technology and Logistics (AT&L), Joint Staff, and USCYBERCOM are leading a DOD-wide approach to enforce compliance with cybersecurity requirements mandated by U.S. law, DOD policy, and USCYBERCOM orders. These defense-wide efforts are driven by plans and policies that help synchronize service and combatant commanders' understanding and compliance with current and future security requirements and support the Planning, Programming, Budgeting and Execution (PPBE) process to meet national, strategic, and operational requirements. This approach will monitor and assess the Services' implementation of cybersecurity plans and policies to verify the overall health of DOD ICS systems. Ultimately, these efforts seek to integrate ICS security into existing DOD cybersecurity processes for Information Technology (IT) systems.

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

THURSDAY, APRIL 7, 2016

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

POSTURE OF THE DEPARTMENT OF THE ARMY

The committee met, pursuant to notice, at 9:30 a.m. in Room SD–G50, Dirksen Senate Office Building, Senator John McCain (chairman) presiding.

Committee Members Present: Senators McCain, Inhofe, Wicker, Ayotte, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Lee, Graham, Reed, McCaskill, Manchin, Shaheen, Gillibrand, Blumenthal, Donnelly, Hirono, Kaine, King, and Heinrich.

OPENING STATEMENT OF SENATOR JOHN MCCAIN, CHAIRMAN

Chairman MCCAIN. Well, good morning.

The Senate Armed Services Committee meets this morning to receive testimony on the posture of the United States Army in review of the defense authorization request for fiscal year 2017 and the future years defense program.

I am pleased to welcome Acting Secretary, much too young, Patrick Murphy, and Army Chief of Staff, General Mark Milley. I thank you both for your years of distinguished service and your continued leadership of our Army.

Fifteen years of war have tested our Army, but time and time again, our soldiers have met that test and proved their commitment, courage, and determination. It is the duty of this committee and this Congress to do our utmost to provide them the support they need and deserve. That starts by recognizing that our Army is still at war. At this moment, 186,000 soldiers are deployed in 140 locations around the globe. They are fighting terrorists and training our partners in Afghanistan and supporting the fight against ISIL, all the while defending South Korea and reassuring our allies in Eastern Europe. The demands on our soldiers only continue to increase as the threats to our Nation grow more diverse, more complex, and more severe.

But despite the stark and urgent realities of the threats to our Nation and the risk they pose to our soldiers, the President continues to ask the Army to do more with less. He has done so once

again with his defense budget request. The President should have requested a defense budget that reflects the scale and scope of the national security threats we face and the growing demands they impose on our soldiers. Instead, he chose to request the lowest level of defense spending authorized by last year's budget agreement and submit a defense budget that is actually less in real dollars than last year, a budget that will force our Army to confront growing threats and increasing operational demands with shrinking and less-ready forces and aging equipment.

By the end of the next fiscal year, the Army will be cut down to 450,000 Active Duty soldiers, down from a wartime peak of 570,000. These budget-driven—I repeat budget-driven—force reductions were decided before the rise of ISIL or the Russians? invasions of Ukraine. Ignoring these strategic facts on the ground, the budget request continues down the path to an Army of 450,000 soldiers, an Army that General H.R. McMaster, an individual known to all of us as one of the wisest soldiers, testified earlier this week, quote, the risk of being too small risks being too small to secure the Nation.

We should be very clear that when we minimize our Army, we maximize the risk to our soldiers, the risk that in a crisis they will be forced to enter a fight too few in number and without the training and equipment they need to win. That risk will only grow worse if mindless sequestration cuts are allowed to return and the Army shrinks further to 420,000 soldiers.

As our Army shrinks, readiness suffers. Just over one-third of the Army's brigade combat teams are ready for deployment and decisive operations. Indeed, just two—just two—of the Army's 60 brigade combat teams are at full combat readiness. The Army has no plan to return to full spectrum readiness until 2021 at the very earliest.

As the National Commission on the Future of the United States Army made clear in its recently published report, both the mission and the force are at risk.

Meanwhile, the Army is woefully behind on modernization, and as a result, America's capability advantage in ground and airborne combat weapon systems is not nearly as great as it once was. Decades of under-investment and acquisition malpractice have left us with an Army that is not in balance, an Army that lacks both the adequate capacity and the key capabilities to win decisively.

As Vice Chief of Staff of the Army General Daniel Allyn recently testified, the Army can no longer afford the most modern equipment and we risk falling behind near peers in critical capabilities. Indeed, the Army currently has no major ground combat vehicle development program underway and will continue to rely on the increasingly obsolete Bradley fighting vehicle and Abrams tanks for most of the rest of this century.

As General McMaster phrased it earlier this week, the Army is, quote, outranged and outgunned by many potential adversaries.

Confronted with the most diverse and complex national array of national security threats since the end of World War II, the Army urgently needs to restore readiness, halt misguided end strength reductions, and invest in modernization. Instead, this budget request is another empty promise to buy readiness today by reducing

end strength and modernization for tomorrow. Mortgaging the future of our Army places an unnecessary and dangerous burden on our soldiers, and I believe it is the urgent task of this committee to do all we can to chart a better course.

I look forward to the testimony of our witnesses today and their recommendations as to how we build the Army the Nation needs and provide our soldiers with the support they deserve.

I would like now to call on a former Army person for his remarks.

STATEMENT OF SENATOR JACK REED

Senator REED. Thank you very much, Mr. Chairman. Thank you for calling this important hearing.

Let me welcome Secretary Murphy and General Milley. Thank you for your distinguished service to the Nation.

As the chairman indicated, we are reviewing the Army's proposals for the fiscal year 2017 budget request, and they are absolutely critical. We are facing extraordinary challenges, and the chairman has outlined them very eloquently and very precisely. We have to rebuild readiness. We have to modernize the force. Also in this light, I think another message is, with all respect to Secretary Murphy, getting not an "acting" Secretary but a permanent Secretary. I hope we could move Mr. Fanning's nomination as quickly as possible.

The President's fiscal year 2017 budget submission for the Department of the Army includes $148.1 billion in total funding, of which $125.1 billion is the base budget and $23 billion for overseas operations in the OCO account.

While the budget request complies with the funding levels included in the Bipartisan Budget Act of 2015, the Army's top line is essentially flat as compared to the fiscal year 2016 enacted levels. As the committee considers the Army's funding request, we must always be mindful of the risks facing our country and our national security challenges. In fact, it is highly unlikely that demand for Army forces will diminish any time in the near future. Currently, as the chairman indicated, 190,000 soldiers across the Active and Reserve components and Active forces are serving in 140 countries. While we continue to field the most capable fighting force in the world, 15 years of sustained military operations focused almost exclusively on counterterrorism and counterinsurgency has taken a toll on the readiness of our soldiers. Today less than one-quarter of our Nation's Army is ready to perform their core wartime missions and some critical combat enabling units are in far worse shape. In addition, the evolving threat facing our Nation impacts readiness as the Army needs to train and fight a near peer competitor in a full spectrum environment.

Unfortunately, while additional funding is important, it is not the sole solution to restoring readiness levels. It will take both time to rebuild strategic depth and relief from high operational tempo.

I applaud the Army for making readiness their number one priority in this year's budget request. General Milley, I look forward to your thoughts on the Army's progress in rebuilding readiness within the timelines the Army has set and what additional resources may be needed.

While readiness is vital, we cannot neglect investments in the modernization of military platforms and equipment. Building and maintaining readiness levels requires that our forces have access to equipment that is properly sustained and upgraded. The Army's fiscal year 2017 budget request—$22.6 billion for modernization efforts that includes $15 billion for procurement and $7.5 billion for research, development, test and evaluation—is a start. I would like to know if our witnesses feel confident that this funding for modernization is adequate and will not adversely impact the future readiness of our aviation units particularly or add substantial cost.

Related to the Army's acquisition processes, this committee made important changes in acquisition and procurement policies in the fiscal year 2016 National Defense Authorization Act, including giving the Service Chiefs significant responsibilities. I would appreciate the Chief's and the Secretary's comments on how these procedures are being worked into the system.

The men and women in uniform in our military and also our civilian workforce remain a priority for our committee. We need to ensure the pay and benefits remain competitive in order to attract and retain the very best for military and government service. The committee also understands, however, that military and civilian personnel costs comprise nearly one-half of the Department's budget. Again, your insights as to how we can control those costs would be very much appreciated.

Finally, as I have stated and as the chairman emphatically stated, the Budget Control Act is ineffective and shortsighted. I believe, in a bipartisan fashion, that we have to repeal the BCA, establish a more reasonable limit on discretionary spending in an equitable manner that meets our domestic and defense needs, and then move forward.

Again, I would like to thank the witnesses and the chairman.

Chairman MCCAIN. Thank you.

Secretary Murphy?

STATEMENT OF HONORABLE PATRICK J. MURPHY, ACTING SECRETARY OF THE ARMY

Mr. MURPHY. Thank you, Mr. Chairman. Thank you, Senator Reed and members of this committee, for allowing me to be here to talk about your Army.

It is my 12th week on the job as Acting Secretary of the Army. It is truly an honor to be back on the Army team. I have traveled to see our soldiers, our civilians and their families in Kentucky, Missouri, Texas, and Kansas and also to Iraq and Afghanistan. The selfless service and dedication of our team should inspire us all. We are tasked with the solemn responsibility to fight and win our Nation's wars and to keep our families safe here at home.

Our Army must produce ready units today to deter and to defeat our Nation's enemies, defend the Homeland, project power, and win decisively. By "ready," we mean units that are fully manned, trained for combat, fully equipped according to the designed structure, and led by competent leaders.

We must also be ready for our future fights by investing in modernization and research and development. We do not want our sol-

diers to have a fair fight. They must have the technical and tactical advantage over our enemies.

With our $125.1 billion base budget request, our Army will focus its efforts on rebuilding readiness for large-scale, high-end ground combat today. We do so because ignoring readiness shortfalls puts our Nation at greatest risk for the following reasons.

First, readiness wins wars. Our Army has never been the largest in the world, and at times we have not been the best equipped. But since World War II, we have recognized that ready soldiers properly manned, trained, equipped, and led can beat larger or more determined forces. Whether confronting the barbaric acts of ISIS or the desperation of North Korea, our Army must be prepared to execute and to win. We train like we fight and our Army must be ready to fight tonight.

Next, readiness deters our most dangerous threats and assures our allies. We are reminded with alarming frequency that great power conflicts are not dead. Today they manifest themselves on a regional basis. Both Russia and China are challenging America's willingness and ability to enforce international standards of conduct. A ready Army provides America the strength to deter such actions and reassure our partners throughout the world.

Readiness also makes future training less costly. Continuous operations since 2001 have left our force proficient in stability and counterterrorism operations. But our future command sergeants major and brigade commanders have not had the critical combat training experiences as junior leaders trained for high-end ground combat. Investing in readiness today builds the foundation necessary for long-term readiness.

Finally, readiness prepares our force for potential future conflicts. We cannot fight the last fight. Our Army must be prepared to face the high-end and advanced combat power of an aggressive Russia or, more likely, Russian aggression employed by surrogate actors.

This budget dedicates resources to develop solutions for this, to allow our force to develop new concepts informed by the recommendations of the National Commission on the Future of the Army. Our formations must first be ready to execute against current and emerging threats.

The choice, though, to invest in near-term readiness does come with risk. Smaller modernization investments risk our ability to fight and win in the future. We have no new modernization programs this decade. Smaller investments in end strength risk our ability to conduct multiple operations for sustained periods of time. In short, we are mortgaging our future readiness because we have to ensure in today's success against emerging threats. That is why initiatives like BRAC [Base Realignment and Closure] in 2019 are needed to be implemented now. Let us manage your investment, and this will result in $500 million a year in savings and a return on your investment within five years.

Lastly, while we thank Congress for the Bipartisan Budget Act of 2015, which does provide short-term relief and 2 years of predictable funding, we request your support for the enactment of our budget as proposed. We request your support for continued funding at levels that are calibrated toward national threats and our inter-

ests. We request your continued support for our soldiers, civilians, and their families so that our military and our Army will continue to be the most capable fighting force in the world and will win in decisive battles and keep our families safe here at home.

Thank you.

[The joint prepared statement of Mr. Murphy and General Milley follows:]

JOINT PREPARED STATEMENT BY THE HONORABLE PATRICK J. MURPHY AND GENERAL MARK A. MILLEY

We would like to thank the committee for their continued support of the United States Army and the American Soldier. Humbled to be entrusted with the care of our soldiers, civilians, and their families, we look forward to working with Congress to ensure our Army remains unmatched in the world.

INTRODUCTION

The United States Army is the most formidable ground combat force on earth. America's Army has convincingly demonstrated its competence and effectiveness in diverse missions overseas and in the Homeland. Today, these missions include: fighting terrorists around the world; training Afghan and Iraqi Army forces; peacekeeping in the Sinai Peninsula and Kosovo; missile defense in the Persian Gulf; security assistance in Africa and South America; deterrence in Europe, the Republic of Korea, and Kuwait; rapid deployment global contingency forces; and response forces for the Homeland. Additionally, we maintain 12,000 miles of U.S. waterways; respond to hurricanes, floods, and severe snowstorms; patrol our Southwest border; and assist with the response to the outbreak of pandemic diseases. In support of these U.S. Geographic Combatant Command missions, the Army has approximately 190,000 soldiers deployed to 140 countries. Largely due to deliberate investments in soldier training, equipping, and leader development, today's Army continues to excel at these diverse and enduring missions. However, we cannot become complacent, remain static, and look to the past or present to be a guarantor of future victory. To sustain this high performance and remain prepared for potential contingencies, the Army must make the most of the resources entrusted to us by the American people. This ultimately requires a balance of competing requirements—readiness, end strength, and modernization—to ensure America's Army remains ready to fight and win both today and in the future.

Throughout history, successful armies anticipated the future, adapted, and capitalized upon opportunities. Today, the Army faces a rapidly changing security environment that requires the Army to make difficult decisions in order to remain an effective instrument of the Nation's military power. An Army ready for combat is the most effective tool to continually assure allies and deter or defeat adversaries. However, given the past three years of reduced funding coupled with the uncertainty of future funding, the Army risks going to war with insufficient readiness to win decisively. Therefore, the Army's number one priority is readiness.

Increasing Army readiness provides additional options for the President, Secretary of Defense, and Congress to successfully implement American foreign and security policy. In this budget, the Army will focus investments on readiness, key modernization programs, and soldier quality of life to sustain the world's greatest Army. Our benchmark of success is to: sustain and improve our capabilities to prevent conflict; shape the environment by building partner capacity; win the current war against terrorists in Iraq, Afghanistan, and elsewhere; and prepare ourselves to win the next war decisively.

A ready Army is a manned, trained, equipped, and well-led force that can conduct Joint missions to deter and defeat a wide range of state and non-state actors. No American soldier should ever go to combat unready for the brutal and unforgiving environment of ground combat—that is the contract we must ensure is rock solid between the American people and the American Army. Therefore, this budget requests Congressional support to fund readiness and end strength, provide our soldiers with modern equipment, and ensure adequate soldier quality of life.

ADAPTING TO NEW STRATEGIC REALITIES

The global security environment is increasingly uncertain and complex. Opportunities to create a less dangerous world through diplomacy, economic stability, collective security, and national example exist, but military strength is both a com-

plementary and foundational element of National power in a dangerous world. Each element is necessary in combination with the others; however, each alone is insufficient to win a war or maintain a peace. The conditions of diplomatic success, for example, are more likely if military options are credible, real, and perceived as unacceptable to an adversary. Therefore, for the Nation to advance its enduring national interests, our Joint force as a whole, and the Army in particular—in terms of capacity and capability—must remain strong.

In Europe, Russia continues to act aggressively. While we cannot predict Russia's next move, its record of aggression in multiple domains throughout the last decade—Georgia in 2008 and Ukraine (both eastern and Crimea) in 2014—clearly illustrates the need to be prepared to deter or defeat further Russian aggression. Russian acts of aggression are a direct threat to the national security of the United States and our NATO allies. Accordingly, in this budget we ask for your support to modify the Army's posture in Europe, including more rotational forces, prepositioned equipment, and increased operational use of the Army National Guard and Army Reserve.

Throughout the Middle East and South Asia, radical terrorism threatens regional order. The Islamic State of Iraq and the Levant, al Qaeda, and other transnational terrorist groups present a significant threat and must be destroyed. The Islamic State of Iraq and the Levant is the most lethal and destabilizing terrorist group in modern history. There are more members of radical Islamic terrorist groups operating in Iraq, Syria, Egypt, Saudi Arabia, Libya, Algeria, Morocco, and elsewhere than ever before. Their ability to seize and hold territory and spread their ideology through social media is a significant challenge. They also have demonstrated both capability and intent for global reach into Europe, Asia, and the United States Homeland. Additionally, although the imminent threat of Iran's nuclear weapons development has reduced, Iran remains a supporter of various terrorist groups and is a considerable threat to stability in the Middle East and United States interests. Destroying the Islamic State of Iraq and the Levant and other radical terrorist groups will take considerable time. It is a necessary commitment and we ask Congress for continued resources to sustain our efforts in the Middle East and South Asia for the long term.

Strategically in Asia and the Pacific, there are complex systemic challenges from unresolved territorial disputes, economic and demographic change, a little noticed ongoing arms race, a perceptible rise in nationalism, and a lack of multilateral collective security regimes in Northeast Asia. China is not currently an enemy, but their rapid military modernization and activities in the South China Sea are warning signs that cause concern. China continues to militarize territorial claims in the South China Sea and impede freedom of navigation in the Asia-Pacific region. The Army, in support of naval, air, and diplomatic efforts, will play a significant role in maintaining peaceful relations with a rising China. Meanwhile, North Korean nuclear and missile developments, in combination with routine acts of provocation in the Demilitarized Zone, continue to pose an imminent threat to regional security in Northeast Asia. The Army's assigned and rotational forces in the Republic of Korea, Japan, and throughout the Asia-Pacific region today provide a deterrent and contingency response capability that strengthens defense relationships and builds increased capacity with our allies. We must sustain and improve that capability to execute our national strategy to rebalance to the Asia-Pacific. In short, the conditions for potential conflict in Asia, as in Europe, are of considerable concern and our Army has an important role to prevent conflict and if conflict occurs, then to win as part of the Joint force.

Politically, socially, economically, and demographically, Africa's potential for positive growth is significant. Realizing this potential depends on African governments' ability to provide security and stability for their people against terrorist groups such as the Boko Haram, al Shabaab, and al Qaeda in the Islamic Maghreb as well as the Islamic State of Iraq and the Levant in Libya. Army forces partner with ministries of defense to develop and shape the environment and establish strategic frameworks that employ forces, build professional military institutions, and partner with European Allies to achieve shared strategic objectives.

In Central and South America, criminal gang and drug trafficking activities have wrought devastating consequences in many of our partner nations, degrading their civilian police and justice systems, corrupting their institutions, and contributing to a breakdown in citizen safety. Our annual multinational training exercises with our partners promote regional cooperation and enhance readiness of partner nation military forces. To date, we have active partnerships with defense and security forces from 26 nations in the Caribbean, Central America, and South America.

Today, state and non-state actors are destabilizing major regions of the world by combining conventional and irregular warfare with terrorism. Acts of aggression

also occur through surrogates, cyber and electronic systems, organized criminal activity, and economic coercion. These groups mobilize people, resources, and sophisticated modern weapons in unconventional ways that enable hostile actors to be more agile than traditional militaries. Since these advantages are low cost, it is likely this form of conflict will persist well into the future and our Army must adapt.

The U.S. Army, as the principal land force of a global power, does not have the luxury of preparing to fight only one type of enemy, at one time, in one place. We cannot forecast precisely when and where the next contingency that requires Army forces will arise. However, history indicates that the next contingency will likely require a commitment of conventional and unconventional forces to conduct operations of significant scale and duration to achieve strategic objectives. If a major crisis occurred today, the Army would likely deploy all uncommitted forces—from all components—into combat on very short notice. Therefore, the readiness of the Army is key to the security of the Nation. Unfortunately, less than one-third of Army forces are at acceptable readiness levels to conduct sustained ground combat in a full spectrum environment against a highly lethal hybrid threat or near-peer adversary. The risk of deploying unready forces into combat is higher U.S. casualty rates and increased risk to mission success. To mitigate this risk, the Army will continue to prioritize readiness to reverse declines from the past 15 years of continuous combat and reduced resources. We welcome continued Congressional support in this effort.

THE FOUNDATION OF AMERICA'S DEFENSE

Fundamentally, America's Army protects the Nation by winning wars as part of the Joint Force. As the Nation's principal land force, the Army organizes, trains, and equips forces for prompt and sustained campaign-level ground combat. The Army is necessary to defeat enemy forces, control terrain, secure populations, consolidate gains, preserve joint force freedom of action, and establish conditions for lasting peace. To do the core tasks globally against a wide range of threats, the Army must have both capability and capacity properly balanced. Although important, it is not just the size of the Army that matters, but rather the right mix of capacity, readiness, skill, superior equipment, and talented soldiers, which in combination, are the key to ground combat power and decision in warfare.

Today's Army maintains significant forces stationed and rotating overseas that provide a visible and credible deterrent. However, should war occur, we must terminate the conflict on terms favorable to the United States—this requires significant ready forces and the operational use of the Army National Guard and Army Reserve. Only the Army provides the President and the Secretary of Defense the ability to rapidly deploy ground forces, ranging in decisive ground capabilities from Humanitarian Assistance and Countering Terrorism to high-end decisive operations. Moreover, the Army conducts these operations in unilateral, bilateral, or coalition environments across the range of conflict from unconventional warfare to major combat operations. In the end, the deployment of the American Army is the ultimate display of American resolve to assure allies and deter enemies.

While the Army fights alongside the Navy, Air Force, Marines, Coast Guard, and our allies, the Nation also relies on a ready Army to provide unique capabilities for the Nation's defense. Unique to the Army is the ability to conduct sustained land campaigns in order to destroy or defeat an enemy, defend critical assets, protect populations, and seize positions of strategic advantage. Additionally, as the foundation of the Joint Force, the Army provides critical capabilities—command and control, communications, intelligence, logistics, and special operations—in support of Joint operations. In short, a ready Army enables the Nation to deploy ground forces in sufficient scale and duration to prevent conflict, shape outcomes, create multiple options for resolving crises, and if necessary, win decisively in war.

READY TO FIGHT TONIGHT

The Army's primary focus on counterinsurgency for the last decade shaped a generation of Army leaders with invaluable skills and experiences. Nonetheless, this expertise comes at a cost. Today, most leaders of combat formations have limited experience with combined arms operations against enemy conventional or hybrid forces. Moreover, the current operational tempo and changing security environment continues to place significant demands on Army forces, stressing our ability to rebuild and retain combined arms proficiency. The Army currently provides 40 percent of planned forces committed to global operations and over 60 percent of forces for emerging demands from combatant commanders.

The four components of readiness—manning, training, equipping, and leader development—describe how the Army prioritizes its efforts to provide trained and ready forces ready to fight and win our Nation's wars. Even though investing in

readiness takes time and is expensive, the result ensures that our soldiers remain the world's premier combat land force.

The first component of readiness, manning, is about people—the core of our Army and keystone to innovation, versatility, and combat capabilities. Unlike other Services that derive power from advanced platforms, the collective strength of the Army is people. America's Army must recruit resilient, fit people of character and develop them into quality soldiers. After recruitment, the Army develops men and women into competent officers, non-commissioned officers, and soldiers who possess combat skills and values essential to the profession of arms. Unfortunately, in order to meet Regular Army end strength reduction requirements, the Army has involuntary separated thousands of mid-career soldiers. While numbers are not the only factor, end strength reductions below the current plan will reduce our capability to support the National Military Strategy. Additionally, manning requires an appropriate mix of forces across the Army—Regular Army, Army National Guard, and the Army Reserve—to accomplish our National military objectives. To support Joint Force commitments worldwide over the last 15 years, the Army increased its operational use of the Army National Guard and the Army Reserve. We will continue this trend as we draw down the Regular Army. With the support of Congress, we can maintain the appropriate force mix capable of conducting sustained land combat operations worldwide with increased operational use of the Army National Guard and Army Reserve.

To win on the battlefield, the Army must sufficiently resource training—the second component of readiness—to provide sufficient combat ready units in a timely manner. Building readiness from the individual soldier to collective units across multiple echelons is time intensive. Moreover, a ready unit is not only prepared in the classroom; it is prepared by conducting rigorous and repetitive training under intense pressure and realistic battlefield conditions. Training at the highest level, the kind the Army conducts at combat training centers, brings all elements of the force together to practice firing, maneuver, and leader decisions against a skilled and determined enemy in all environmental conditions. In fiscal year 2016 and fiscal year 2017, the Army has programmed 19 combat training center rotations, giving soldiers and leaders intensive combined arms maneuver experiences in anticipation of future combat. Key to success of the combat training center exercises is preparing at home station. Both combat training center exercises and home station training have declined in the past 15 years. Ultimately, training is the most essential aspect of readiness and we must rapidly improve this area. Therefore, we request funding for training that will enable our soldiers to succeed.

A trained army requires modern equipment to win—the third component of readiness. An unintended consequence of the current fiscal environment is that the Army has not equipped and sustained the force with the most modern equipment and risks falling behind near-peers. Instead, funding constraints forced the Army to selectively modernize equipment to counter our adversary's most significant technological advances. While we are deliberately choosing to delay several modernization efforts, we request Congressional support of our prioritized modernization programs to ensure the Army retains the necessary capabilities to deter and if necessary, defeat an act of aggression by a near-peer.

The fourth component of Army readiness is leader development. As stated in the 2015 National Military Strategy, "Military and civilian professionals are our decisive advantage." The Army is committed to build leaders of character who are technically and tactically proficient, adaptive, innovative, and agile. It takes time to develop soldiers who can successfully lead, train, and equip a unit for combat. Leader development starts with a framework of formal training coupled with professional education and operational assignments. Professional Military Education serves as the principal way leaders combine experiences gained during operational assignments with current and emerging doctrinal methods in preparation for combat. As such, we have re-established the requirement to have our leaders complete military education prior to promotion. Ultimately, predictable funding provides the facilities and faculty that develop Army leaders who provide the Nation an advantage that neither technology nor weapons can replace.

The deliberate decision to prioritize readiness while reducing end strength and decreasing funding for modernization places the Army in a readiness paradox: devoting resources to today's readiness invariably decreases investments for future readiness. While the Army prefers investments for current and future readiness, the security environment of today demands readiness for global operations and contingencies. We request the support of Congress to fund Army readiness at sufficient levels to meet current demands, build readiness for contingencies, and understand the mid and long term risks.

STRENGTHENING ARMY READINESS

Before the Army can significantly increase readiness, there must be an infrastructure to support Army manning, training, equipping, and leader development. Army readiness occurs on Army installations—where soldiers live, work, and train. Installations provide the platform where the Army focuses on its fundamental task—readiness. The Army maintains 154 permanent Army installations, and over 1100 community-based Army National Guard and Army Reserve Centers worldwide. Regrettably, we estimate an annual burden of spending at least $500M/year on excess or underutilized facilities. In short, smaller investments in Army installations without the ability to reduce excess infrastructure jeopardizes our ability to ensure long-term readiness. To continue the efficient use of resources, the Army requests Congressional authority to consolidate or close excess infrastructure.

As we spend taxpayer's dollars, the Army makes every effort to achieve the most efficient use of resources and demonstrate accountability. The Army is conducting a 25 percent headquarters personnel reduction to minimize the impact of our end strength reductions to our combat formations. These headquarters personnel reductions and future reductions will reduce authorizations for soldiers and civilians at a comparable rate.

The Army is also reviewing the recommendations of the National Commission of the Future of the Army. After a thorough assessment, we intend to implement recommendations that increase Army readiness, consistent with statute, policy, and available resources. Implementation of any recommendation will include the coordinated efforts of the Army's three components: the Regular Army, the Army National Guard, and the Army Reserve. The Army may request the support of Congress to reprogram funding and, if needed, request additional funds to implement the commission's recommendations.

In addition to the recommendations of the National Commission of the Future of the Army, the size and mix of Army forces relates to the capabilities required in the 2015 National Military Strategy. To respond to global contingencies or domestic emergencies, the Army has 37 multicomponent units—units that have members of the Regular Army, Army National Guard, and the Army Reserve. Multicomponent units strengthen Army readiness by training together today and if needed, fighting together tomorrow.

The Army has excelled in providing trained and ready forces for combatant commanders across a wide array of missions for the past 15 years of war. This creates the impression we are ready for any conflict. In fact, only one-third of Army forces are at acceptable combat readiness levels, a byproduct of near continuous deployments into Iraq and Afghanistan. To address this readiness shortfall, the Army has redesigned our force generation model to focus on Sustainable Readiness: a process that will not only meet combatant commander demands, but will sustain unit readiness in anticipation of the next mission. This process synchronizes manning, equipping, training and mission assignments in such a way to minimize readiness loss and accelerate restoration of leader and unit proficiency. Designed for all three components and all types of units, our objective within current budget projections is to achieve two-thirds combat readiness for global contingencies by 2023. But, we will do everything possible to accelerate our progress to mitigate the window of strategic risk.

MODERNIZATION: EQUIPPED TO FIGHT

While rebalancing readiness and modernization in the mid-term, from 2020 to 2029, the Army will not have the resources to equip and sustain the entire force with the most modern equipment. Informed by the Army Warfighting experiments, the Army will invest in programs with the highest operational return and we build new only by exception. We will delay procurement of our next generation platforms and accept risk to mission in the mid-term. The Army Equipment Modernization Strategy focuses on the five capability areas of Aviation, the Network, Integrated Air Missile Defense, Combat Vehicles, and Emerging Threats.

The Army will resource the first capability area, **Aviation,** to provide greater combat capability at a lower cost than proposed alternatives. Key to the success of this initiative is the divestment of the Army's oldest aircraft fleets and distributing its modernized aircraft between the components. The Army will upgrade the UH–60 Black Hawk fleet and invest in the AH–64 Apache. These helicopters provide the capability to conduct close combat, mobile strike, armed reconnaissance, and the full range of support to Joint operations. Though aviation modernization is a priority, reduced funding caused the Army to decelerate fleet modernization by procuring fewer UH–60 Black Hawks and AH–64 Apaches in fiscal year 2017.

Second, the Army must maintain a robust ***Network*** that is not vulnerable to cyber-attacks. This network provides the ability for the Joint Force to assess reliable information on adversaries, the terrain, and friendly forces. This information provides a decisive advantage by enabling the Joint Force commander to make accurate and timely decisions, ultimately, hastening the defeat of an adversary. Key investments supporting the network are the Warfighter Information Network-Tactical; assured position, navigation, and timing; communications security; and defensive and offensive cyberspace operations.

The Army will invest in the third capability area, ***Integrated Air Missile Defense,*** to defeat a large portfolio of threats, ranging from micro unmanned aerial vehicles and mortars to cruise missiles and medium range ballistic missiles. The Army will support this priority by investing in an Integrated Air and Missile Defense Battle Command System, an Indirect Fire Protection Capability, and the Patriot missile system.

Army improvements to ***Combat Vehicles*** ensure that the Army's fourth modernization capability area provides future Army maneuver forces an advantage over the enemy in the conduct of expeditionary maneuver, air-ground reconnaissance, and joint combined arms maneuver. Specifically, the Army will invest in the Ground Mobility Vehicle, Stryker lethality upgrades, Mobile Protected Firepower, and the Armored Multi-Purpose Vehicle.

Finally, the Army will address ***Emerging Threats*** by investing in mature technologies with the greatest potential for future use. The Army will invest in innovative technologies that focus on protecting mission critical systems from cyber-attacks. To this end, the Army will invest in innovative technologies focused on active protection systems (both ground and air), aircraft survivability, future vertical lift, directed energy weapons, cyber, and integrated electronic warfare.

The Army modernization strategy reflects those areas in which the Army will focus its limited investments for future Army readiness. However, our implementation of the strategy will fall short if we delay investment in next generation platforms. We request the support of Congress to provide flexibility in current procurement methods and to fund these five capability areas—Aviation, the Network, Integrated Air Missile Defense, Combat Vehicles, and Emerging Threats—to provide the equipment the Army requires to fight and win our Nation's wars.

We support the ongoing Congressional efforts to streamline redundant and unnecessary barriers in the acquisition process. Our adversaries are rapidly leveraging available technology; our acquisition process must be agile enough to keep pace. Aligning responsibilities with authorities only improves the acquisition process. The Army remains committed to ensuring that we make the right acquisition decisions and that we improve the acquisition process to maintain a technological advantage over adversaries and provide requisite capabilities to soldiers.

SOLDIERS, CIVILIANS, AND FAMILIES: OUR GREATEST ASSET

The Army's collective strength originates from the quality citizens we recruit from communities across America and place into our formations. We build readiness by training and developing American citizens into ethical and competent soldiers who are mentally and physically fit to withstand the intense rigors of ground combat. Additionally, the families of our soldiers make sacrifices for the Nation that contribute to Army readiness and play an important part in achieving mission success. As a result of the dedication and sacrifices of soldiers and their families, the Army is committed to providing the best possible care, support, and services.

The Army is committed to improve access of behavioral health services. Beginning in 2012, the Army transformed its behavioral health care to place providers within combat brigades. These embedded behavioral health teams improve soldier readiness by providing care closer to the point of need. However, the Army only has 1,789 of the 2,090 behavioral health providers required to deliver clinical care. The Army will continue to use all available incentives and authorities to hire these high demand professionals to ensure we provide our soldiers immediate access to the best possible care.

The Army provides an inclusive environment that provides every soldier and civilian equal opportunities to advance to the level of their ability regardless of their racial background, sexual orientation, or gender. This year, the Army removed legacy gender-based entry barriers from the most physically and mentally demanding leadership school the Army offers—the United States Army Ranger School. To date, three female soldiers have graduated the United States Army Ranger School. We increasingly recognize that we derive strength from our diversity, varying perspectives, and differing qualities of our people. The Army welcomes the increased opportunities to bring new ideas and expanded capabilities to the mission.

The Army does not tolerate sexual assault or sexual harassment. We are committed to identifying and implementing all proven methods to eliminate sexual harassment and sexual assault. As an example, the United States Army Cadet Command shared sexual harassment and sexual assault prevention best practices with universities and organizations nationwide. Currently, Cadet Command has 232 Army Reserve Officers Training Corps programs that have signed partnership charters with their colleges or universities. These cadets actively participate in education and awareness training on campuses that include programs such as "Take Back the Night" and "Stomp Out Sexual Assault." Cadets also serve as peer mentors, bystander intervention trainers, and sexual assault prevention advocates.

Prevention is the primary objective of the Army Sexual Harassment/Assault Response and Prevention (SHARP) program. However, when an incident does occur, the Army initiates a professional investigation to hold the offender accountable while providing best-in-class support and protection to the survivor. Additionally, the Army performs assessments of SHARP program strategies to measure effectiveness. To increase effectiveness, the U.S. Army Medical Command ensures that every Military Treatment Facility operating a 24/7 Emergency Room has a trained and qualified Sexual Assault Medical Forensic Examiner. Our enduring commitment to the SHARP program strives to eliminate sexual assault and sexual harassment, strengthen trust within our formations, and ensure our soldiers are combat ready.

Another program committed to keeping the faith and improving quality of life is the Soldier For Life Program. The Soldier For Life program connects Army, governmental, and community efforts to build relationships that facilitate successful reintegration of our soldiers and their families into communities across America. Currently, the Soldier For Life program offers support to 9.5 million Army veterans and soldiers. Moreover, the Army plans to support the transition of 374,000 soldiers in the next three years. In 2015, veteran unemployment in the United States was at a seven-year low and employers hired veterans at higher rates than non-veterans. Additionally, the Army distribution of fiscal year 2015 unemployment compensation for former servicemembers was down 25 percent, $81.8 million, from fiscal year 2014. The Army seeks to continue the positive trends for Army soldiers, family members, and veterans in 2015. Ultimately, this program provides a connection between the soldiers and the American people.

The Army's most valuable asset is its people; therefore, the well-being of soldiers, civilians, and their family members, both on and off-duty remains critical to the success of the Army. Taking care of soldiers is an obligation of every Army leader. The Army focuses on improving personal readiness and increasing personal accountability. Programs like "Not in My Squad," first championed by Sergeant Major of the Army Daniel Dailey, empower Army leaders to instill Army values in their soldiers and enforce Army standards. Our soldiers and civilians want to be part of a team that fosters greatness. It is through personal conduct and proactive leadership that we seek to improve on a culture of trust that motivates and guides the conduct of soldiers. The American people expect and continue to deserve an Army of trusted professionals.

THE ARMY'S BUDGET REQUEST

The Army requires sustained, long term, and predictable funding. We thank Congress for the Bipartisan Budget Act of 2015, which provides short-term relief and two years of predictable funding. However, funding levels are not keeping pace with the reality of the strategic environment and global threats. Moreover, while the current budget provides predictability, it does so at funding levels less than envisioned by the President last year. In short, the fiscal year 2017 Army Budget base request of $125.1 billion is $1.4 billion less than the fiscal year 2016 enacted budget of $126.5 billion. As a result, the Army will fully fund readiness, reduce funding for modernization and infrastructure maintenance, and continue programmed end strength reductions.

Our major goals in this budget request are to: improve readiness by fully manning in combat units, increase combat power, streamline headquarters, improve command and control, and conduct realistic combined arms training. The Army will also modernize in five capability areas: Aviation, the Network, Integrated Air Missile Defense, Combat Vehicles, and Emerging Threats. Additionally, the Army will ensure the recruitment and retention of high quality soldiers of character and competence. The fiscal year 2017 budget also provides adequate funding so that we can provide soldiers, civilians, and their families the best possible quality of life. Absent additional legislation, the Budget Control Act funding levels will return in fiscal year 2018. This continued fiscal unpredictability beyond fiscal year 2017 is one of the Army's single greatest challenges and inhibits our ability to generate readiness.

This will force the Army to continue to reduce end strength and delay modernization, decreasing Army capability and capacity—a risk our Nation should not accept.

CONCLUSION

The Army's fiscal year 2017 budget prioritizes readiness while reducing our end strength and delaying modernization. Prioritizing Army readiness ensures the Joint Force has the capability to deter, and when required, fight and win wars in defense of the United States and its national interests. To fulfil this obligation to the Nation, the Army requires predictable and sufficient funding to build readiness, maintain Army installations, modernize equipment, and provide soldier compensation commensurate with their service and sacrifice.

The Nation's resources available for defense are limited, but the uncertainties of today require a ready force capable of responding to protect our national interests. An investment in readiness is the primary means that allows the Army to meet the demands of our combatant commanders and maintain the capacity to respond to contingencies worldwide. By building readiness, the Army provides the Joint Force the ability to respond to unforeseeable threats, decisively defeat our enemies, and advance the Nation's national security interests. As a result of our current fiscal uncertainty, the Army prioritizes today's readiness and accepts risk in modernization, infrastructure maintenance, and sustained end strength in the mid and long term. We request the support of Congress to fund Army readiness at sufficient levels to meet current demands, build readiness for contingencies, and understand the mid and long term risks. Ultimately, the American people will judge us by one standard: that the Army is ready when called upon to fight and win our Nation's wars.

Chairman MCCAIN. General Milley?

STATEMENT OF GENERAL MARK A. MILLEY, USA, CHIEF OF STAFF OF THE ARMY

General MILLEY. Thank you, Chairman McCain and Ranking Member Reed and other distinguished members of the committee for the opportunity to appear before you today to discuss our Army. Thank you for your consistent support and commitment to our soldiers, our civilians, and our families.

The United States Army, as I mentioned six months ago when I took this job, must remain the most capable, versatile, and lethal ground force valued by our friends and most importantly feared by our enemies.

This mission in my view has one common thread, and that thread is readiness. A ready Army is manned, trained, equipped, and well led as the foundation of the joint force in order to conduct missions to deter and if deterrence fails, to defeat a wide range of state and non-state actors today, tomorrow, and into the future.

As mentioned by the chairman, 15 years of continuous counterinsurgency operations, combined with recent reduced and unpredictable budgets, has created a gap in our proficiency to conduct combined arms operations against enemy conventional or hybrid forces resulting in an Army today that is less than ready to fight and win against emerging threats. America is a global power, and our Army must be capable of meeting a wide variety of threats under varying conditions anywhere on earth. Our challenge today is to sustain the counterterrorism/counterinsurgency capabilities that we have developed to a high degree of proficiency over the last 15 years while simultaneously rebuilding the capability to win in ground combat against higher-end threats such as Russia, China, North Korea, and Iran. We can wish away these cases, but we would be very foolish as a Nation to do so.

This budget prioritizes readiness because the global security environment is increasingly uncertain and complex. Today in the

Middle East, South Asia, and Africa, we see radical terrorism and the malign influence of Iran threatening the regional order. Destroying ISIS [Islamic State in Iraq and Syria] is the top operational priority of the President of the United States. The Army conventional and special operations forces are both playing a key part in that effort.

In Europe, a revanchist Russia has modernized its military, invaded several sovereign countries since 2008, and continues to act aggressively towards its neighbors using multiple means of Russian national power. The Army will play an increasing role in deterring or, if necessary, defeating an aggressive Russia.

In Asia and the Pacific, there are complex systemic challenges with a rising China that is increasingly assertive militarily, especially in the South China Sea, and a very provocative North Korea. Both situations are creating conditions for potential conflict. Again, the United States Army is key to assuring our allies in Asia and deterring conflict or defeating the enemy if conflict occurs.

While none of us in this room or anywhere else can forecast precisely when and where the next contingency will arise, it is my professional military view that if any contingency happens, it will likely require a significant commitment of Army ground forces because war is ultimately an act of politics requiring one side to impose its political will on the other. While wars often start from the air or the sea, wars ultimately end when political will is imposed on the ground. If one or more possible unforeseen contingencies happen, then the United States Army currently risks not having ready forces available to provide flexible options to our national leadership, and if committed, we risk not being able to accomplish the strategic tasks at hand in an acceptable amount of time. Most importantly, we risk incurring significantly increased U.S. casualties.

In sum, we risk the ability to conduct ground operations of sufficient scale and ample duration to achieve strategic objectives or win decisively at an acceptable cost against the highly lethal hybrid threat or near peer adversary in the unforgiving environment of ground combat.

The Army is currently committed to winning our fight against radical terrorists and deterring conflict in other parts of the globe. Right now as we speak, the Army provides 46 percent of all of the combatant commanders' demands around the globe and 64 percent of all emerging combatant commander demand. As pointed out by both the ranking member and the chairman, almost 190,000 American soldiers are currently deployed in over 140 countries globally.

To sustain current operations and to mitigate the risks of deploying an unready force into the future, the Army will continue to prioritize and fully fund readiness over end strength, modernization, and infrastructure. This is not an easy choice, and we recognize the risk to the future. While the Army prefers our investment for both current and future readiness, the security environment of today and the near future drive investment into current readiness for global operations and potential contingencies.

Specifically, we ask your support to fully man and equip our combat formations and conduct realistic combined arms combat training at both home station and our combat training centers. We ask your support for our modernization in five key limited areas: avia-

tion, command and control network, integrated air missile defense, combat vehicles, and the emerging threats programs. Finally, we ask and appreciate your continued support for our soldiers and their families to recruit and retain high quality soldiers of character and competence.

We request your support for the fiscal year 2017 budget and we thank you for the Bipartisan Budget Act of 2015, which did provide some short-term relief and two years of predictable funding.

With your support, we will fund readiness at sufficient levels to meet our current demand, and we will build readiness for contingencies for the future.

Thank you for your continued support, and I look forward to your questions.

Chairman MCCAIN. Well, thank you, General.

I have read yours and Secretary Murphy's written testimony, which I think is excellent. It is not often that I quote from it, but in reference to the Budget Control Act, you state this continued fiscal unpredictability beyond fiscal year 2017 is one of the Army's single greatest challenges and inhibits our ability to generate readiness. I think that is pretty straightforward.

Then it goes on to say this will force the Army to continue to reduce end strength and delay modernization, decreasing Army capability and capacity, a risk our Nation should not accept. Those are pretty strong words. I thank you for them.

I am often a critic of the administration's policies, but that sentence can be laid at the doorstep of the Congress of the United States of America and our failure to stop this mindless meat axe reduction in our capabilities to defend this Nation. I thank you for the straightforward comments on that issue. If—God forbid—a crisis arises, part of the responsibility for our inability to act as efficiently and rapidly as possible will lay at the doorstep of the Congress of the United States of America which, by the way, is a majority of my party.

General Milley, in your statement, you made it very clear, but let me just—are we at high military risk?

General MILLEY. Senator, yes. I wrote a formal risk assessment, which you know is classified, through the Chairman and to the Secretary of Defense. I characterized this at this current state at high military risk.

Chairman MCCAIN. High military risk is a very strong statement, and I am sure you thought long and hard before you made it.

Could we not substantiate that high military risk by pointing out that two of the brigade combat teams are at category one—the BCTs [Brigade Combat Teams]—and approximately—is it one-third that category one or two? Is that correct? Two-thirds of our BCTs would require some additional training, equipment, whatever before they would be ready to fight? Is that the correct interpretation of that classification?

General MILLEY. Yes, Senator. In short, yes. I would say even those that are—the couple that are at the highest level—we could deploy them immediately. In fact, one of them is forward deployed already. The others, even the ones on the second, third, and all the rest of them—they are going to require something in terms of

training to get them ready. But roughly speaking, one-third across the board of our combat formations, our combat support, and our combat service support are in a readiness status that is ready to go.

Chairman MCCAIN. It would require, depending on the unit, some length of time to make them ready to get into category one or two.

General MILLEY. That is correct.

Chairman MCCAIN. Two-thirds are not ready to defend this Nation immediately in time of crisis.

General MILLEY. That is correct. They would require some amount of time to bring them up to a satisfactory readiness status to deploy into combat.

Chairman MCCAIN. You pointed out at the beginning—and so did I—the 186,000 soldiers in 140 locations around the globe. Can we maintain that if we continue to reduce the end strength of the Army down to 420,000, taking into consideration we are an All-Volunteer Force?

General MILLEY. To my knowledge, 420,000 is only under sequestration. This budget takes it to 450,000. But even at 450,000 for the Active force—and some of those forces deployed overseas are National Guard and Reserve. A 980,000 total Army is stretched to execute the global commitments. The real issue is if a contingency arises, and then some really tough choices are going to have to get made.

Chairman MCCAIN. Any sane observer of what is going on in the world would surmise, as we incrementally increase our particularly Army special forces deployments, that the requirements, at least in the short term or short and medium term, is going to require more deployments, more training, more equipment in order to counter the rising threats that we see that Secretary Murphy outlined in this opening statement. Is that true?

General MILLEY. I think that is a correct assessment. Yes, Senator.

Chairman MCCAIN. Which is why you have come to the conclusion that we are at, quote, high military risk.

General MILLEY. That is correct. On the high military risk, to be clear, we have sufficient capacity and capability and readiness to fight counterinsurgency and counterterrorism. High military risk refers specifically to what I see as emerging threats and potential for great power conflict, and I am specifically talking about the time it takes to execute the tasks. High risk would say we would not be able to accomplish all the tasks in the time necessary and the cost in terms of casualties. Combined, that equals my risk assessment.

Chairman MCCAIN. Well, I thank both you and Secretary Murphy for your very forthright testimony before the committee today. I think it is extremely helpful.

Senator Manchin?

Senator MANCHIN. Thank you, Mr. Chairman.

I thank both of you for your service and appreciate you being here.

In the past few days, General Milley, I have had a chance to talk with some of your general officers and came away with two big con-

cerns: the reduction of the size of our Army and budget predictability—more so than I have ever been. I have been shaking my head at sequestration for years now. It is a foolish way to set budgets. It was a penalty that we put on ourselves because we never thought we would ever go there, that we would ever be dysfunctional or become in political discord the way we are and could not come together to prevent that from happening. But it did and we have got to move on.

So, General Milley, what I would ask—could you walk me through specifically how the sequestration has forced the Army to reduce its size to the most critical level that I think we have ever faced right now with all the threats that we are facing?

General MILLEY. I think there are a couple of points to be made. One is the unpredictability, the year-to-year budgeting. In reality because we go with continuing resolutions, it really ends up being about a 9-month cycle vice 12-month. The unpredictability, the short-term nature of it does not allow for longer-term planning projection and some certainty for equipment, for example, with industry or for training plans for units and so and so. That is a big deal, is the uncertainty.

The second piece of it is just the magnitude of the cuts. Since 2008, the Army has had about a 74 percent or 75 percent cut in the modernization account at large and about a 50 percent cut in R&D [Research & Development] at large. You know, less than 10 years. That is a significant cut.

If we think 10 years ahead and look 10 years behind, if that trend continues, that is not good. What we are focusing on is today's readiness. A 20- and 21- and 22-year-olds, etcetera that are in the Army today—we are focusing on them being ready to deploy and to conduct combat operations because that is necessary. But if you are 10 years old today, I am worried about the 10-year-old who is going to be the soldier 10 years from now. That is a bigger risk that we are taking, but we are compelled into that risk based on the top line that we are given.

Senator MANCHIN. We are time-limited right now, but we are going to 980,000, I guess, troop strength.

General MILLEY. That is correct.

Senator MANCHIN. For everything I heard from all of your frontline generals basically is there is no way that we can meet the imminent threat that we have around the world with 980,000 people.

General MILLEY. It is high risk.

Senator MANCHIN. If you confirm that at high risk, what would it take for us not to be at high risk? These are artificial caps and all this other bull crap that we are dealing with.

General MILLEY. I have got a series of studies that are ongoing. If we operate under the current National Security Strategy, the current Defense Planning Guidance, in order to reduce to significant risk or moderate risk, it would take, roughly speaking, about a 1.2 million person——

Senator MANCHIN. We are over 200,000 troops short.

General MILLEY. Right. At $1 billion for every 10,000 soldiers, that money is not there. We are going to make the most efficient and effective use of the Army that we have.

Senator MANCHIN. Secretary Murphy, if I may. I have a lot of concerns regarding the level of contract support. We have talked about that and I have never gotten a good handle on it. I think I have always heard it has been two for one. For every one soldier we have in uniform, we have two people backing that person up, roughly.

My question to you, are the long-term savings that some of your bean counters tell us that by having a contractor, there is long-term savings that provide substantial—or is the number of contractors driven by the arbitrary troop force caps that prevent us from deploying the soldiers to do these jobs? Are they telling us it is long-term savings here, and with these caps here, the only way you are getting around the caps is by having more contractors on the back end to do jobs that soldiers in uniform should be doing?

Mr. MURPHY. Senator Manchin, after 9/11, when I deployed a couple months later, we went from our gate guards and our security forces at our compound in Tuzla, Bosnia from our soldiers to private contractors.

Senator MANCHIN. Because of the caps?

Mr. MURPHY. I am not trying to be disrespectful. They were not at the level of readiness. But that is what we have been doing for 15 years, Senator. Again, I am not saying that is right. I have the numbers. We have cut civilians 46,000, 16 percent civilians and contractors, 16 percent. That is 46,000 of them. I am looking at this. The most lethal——

Senator MANCHIN. How many troops have we cut over the same period of time?

Mr. MURPHY. Well, we cut 150,000. 13 percent in soldiers, 16 percent in civilians and contractors. I am trying to balance this, Senator. You know, we talked about the cuts.

Senator MANCHIN. Are you making decisions based on the caps that we have? Somebody has put caps in there for some reason because we did not want people in uniform, for whatever reason, which I cannot understand and cannot explain to the good people of West Virginia why you do not want people in uniform who we count on and are trained properly to do the job.

Mr. MURPHY. When I was where you were five years ago in Congress on the Armed Services Committee, we did not even know how many contractors we had. I have my arms around it now. We are getting after it, and we are making sure that it makes the most fiscal sense but sense mostly for national security.

Senator MANCHIN. Very quickly. My time is running out.

If I could say this, if we go to the 1.2 million, if somehow we had the resolve to do what we need to do here to meet the imminent threats we have, do we have proportionally contractors—we have to go up also in contractors. Will that 1.2 million be able to do some of the jobs that contractors are doing now?

Mr. MURPHY. I would say that some of our soldiers will do more of the jobs, but our soldiers are geared for brigade combat teams to win.

Senator MANCHIN. Thank you. My time is up.

Chairman MCCAIN. Mr. Secretary, we eagerly look forward to the day when you can tell us how many contractors are employed in

the Department of Defense, and it will be one of the most wonderful days of my political career.

Senator Fischer

Senator FISCHER. Thank you, Mr. Chairman.

General, this committee has held a number of hearings about the future of warfare and what new technologies are going to be required. This is something that the Secretary and the Deputy Secretary have discussed at length as well. We have heard some very bold predictions about incorporating robotic systems on the battlefield as soon as the next 10 years. Do you think we are going to see a real revolution in the role of unmanned systems on the battlefield in the next 10 years? Do you think that is a goal that we should be working towards in the view of other near-term requirements that you are facing?

General MILLEY. Thank you, Senator.

I think "revolution" might be too strong a word. But I do see a very, very significant increased use of robotic, both manually controlled and autonomous, in ground warfare over the coming years. I do not see some sort of revolution like we are going to go from the horse to the tank or the musket to the rifle. But I do see the introduction at about the 10-year mark or so of really widespread use of robotics in ground warfare. We are already seeing it in air platforms and we are seeing it in naval platforms. The ground warfare is a much complex environment, dirty environment, but I do anticipate that we are going to refine the use of robots significantly and there will be a large use of them in ground combat by—call it—2030.

Senator FISCHER. As service secretary, what role do you have in the third offset initiative? We have heard that we will be exploring some new operational concepts and capabilities for ground combat. Is that something that the Army is leading on?

Mr. MURPHY. Senator, I would say with the third offset, we need to lead from the front. We are talking about leap-ahead technologies. When you look back at the second offset, we are talking about precision munitions. We are talking about GPS [Global Positioning System]. When I was in Iraq, we did most of our operations at night because we had night vision goggles. Again, this is the technology. When I say we do not want a fair fight, we want our soldiers at a technical and tactical advantage. When you talk about the leap-ahead technology, the third offset, I do think it is robotics. I think robotics, cyber, electronic warfare—the gains that we need to make there because, by the way, ma'am, our peer competitors are investing in those things too, and we cannot be outmanned and outgunned. We need to make sure that we have the technical and tactical advantage. I am definitely part of that within the Army and within the Department of Defense.

General MILLEY. May I make a comment, ma'am?

Senator FISCHER. Yes, certainly.

General MILLEY. I think for the next 5 to 10 years, for ground warfare you will see evolutions and you will see acceleration of some of these technologies brought in, but they will be episodic. I think 10 years and beyond, though, I do see a very significant transformation of ground warfare, the character of war, not the nature of war. That would include robotics, cyber, lasers, railguns,

very advanced information technologies, miniaturization, 3D printing. All of these technologies that are emerging in the commercial world I think will end up having military application just past a decade from now. I think we, the Army, going back to risking the future, need to invest in the R&D and the modernization of that or we are going to find the qualitative overmatch gap between the United States and adversaries closed. We are already seeing that gap closing today.

Senator FISCHER. When we talk about the third offset, many times we focus on the stuff. We focus on the new technologies that are out there, and we hear about the robotics. We hear about the lasers. I would like to know how much input both of you would have when it comes to setting goals and missions and then trying to figure out what technologies are out there or what needs to be designed in order to meet those goals instead of reacting to the technology that is there. How do you view that?

General MILLEY. I mean, it is an iterative, interactive process, number one. But number two, say 25, 30, 40 years ago, much innovation was done by the Department of Defense in terms of technology. Today most technological innovation is actually being done by the commercial world. It is important that we have linkages into the commercial sector, Silicon Valley, 128 up in Boston, the Triangle, and down in Texas. It is all these innovative centers. We need to keep in touch with them closely, and we do have a lot of input not just personally but also through the organization of the Army. We do have a lot of input into it. There is a lot of technological advances out there.

There are a couple of challenges. One is what does the year 2025, 2030, 2040, 2050 look like demographically, politically, economically, socially, et cetera but also technologically. Those are some big questions. Once we can figure that out—and we are working hard at that—then we can drive the ways in which we desire to fight. Once you figure that out, then you can figure out the equipment, the organizations, the training plans, et cetera to create that organization. But we first have to define what exactly is that world going to look like, at least as best we can. We will not get it exactly right, but we want to get it more right than the enemy.

Senator FISCHER. Thank you, General. I wish you good luck in trying to figure that out and meet those goals for the future. Thank you very much.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Reed?

Senator REED. Thank you very much, Mr. Chairman.

Gentlemen, thank you for your testimony again.

You have put the focus on readiness, which I think is appropriate. If additional resources could be freed up in this process, General Milley, where would you focus in terms of more emphasis on readiness?

General MILLEY. A couple of key places, Senator. Thank you. One would be aviation flight hours. I think that is important. We dropped aviation flight hours from about 14, 15, which is really a requirement per month, down to about 10. We bumped it back up to 12, but we probably need some more. That would be one area.

Secondly and very importantly is home station training. We all of the units, all the brigade combat teams to go either the joint readiness training center, the national training center, or the training center in Germany. Key to success at one of those big ticket training centers is the home station preparatory training prior to going, all the gunneries, the field training exercise, et cetera. That has been underfunded over the past years. If we can get home station training up to a level, then the units will come out of the CTCs [Combat Training Centers] at a much higher level in combined arms training.

I would put it probably in aviation flight hours and in the home station training.

Lastly, the third to last would be if we did have additional monies, I would probably put it towards additional CTC training for the National Guard. The National Guard is going to be very, very important because of the capacity issue of the regular Army to deal with the current day-to-day but also the contingency operation. We need to increase—in short order, we need to increase the readiness of the Army National Guard's combat formations.

Senator REED. This year, I believe you have two scheduled rotations to the training centers for National Guard brigades.

General MILLEY. That is correct, Senator. We are trying to increase it to four.

Senator REED. A related issue in terms of the emphasis on flying hours and readiness, et cetera, particularly in Army aviation, the procurement and the acquisition process—are you at a point now where you could jeopardize long-term aviation programs, or do you still have a little bit of head space?

General MILLEY. I think we are approaching the margin. It is very tight right now. What we have done is we have had to stretch out aviation modernization in order to reach some of that for readiness. Aviation is about, roughly speaking, 20 percent or so—25 percent of the operating budget. We have stretched out aviation modernization to take those monies and put it into readiness.

Senator REED. One of the points I think that you have made in your comments is that the emphasis on training at home station, which means the units have to be at home essentially. It is the time element. It is the dwell element rather than the deploy element.

General MILLEY. That is correct.

Senator REED. If we were to, not in terms of a major contingency, but in terms of the current situation, begin to increase our footprint in places around the world, the dilemma would be that would rob you of the time and the available troops to get ready for the next big battle. Is that a fair statement?

General MILLEY. Sort of, Senator, in that some of these overseas exercises actually improve your readiness.

Senator REED. I am not talking about exercises. I am talking about a commitment in terms of a kinetic situation.

General MILLEY. An operational commitment? Yes, that would consume readiness. That is correct.

Senator REED. That is the dilemma because we always have to be prepared to do that, and if it happens, then we will do it. But

we have to understand the cost not only short term but long term is that we fall further behind in the readiness.

General MILLEY. That is correct.

Senator REED. The point that has been made very, very powerfully by the chairman and myself is that sequestration has to be eliminated because this year might be manageable. Next year, if sequestration is imposed, it becomes frankly impossible and you would have to come up here and tell us that you probably could not perform your mission. Is that fair?

General MILLEY. I think if sequestration were imposed and went to those levels, that we could not perform the missions assigned to us under the current strategy. Most important to me, as a commissioned officer, and I think important to this committee is we would risk American lives if we were committed into combat.

Senator REED. Well, again, thank you, sir, for your service. Thank you, Mr. Secretary, for your service.

Thank you, Mr. Chairman, for this hearing.

Chairman MCCAIN. Senator Cotton?

Senator COTTON. Thank you.

Thank you, gentlemen, for appearing before us.

General Milley, I would like to return to the priorities you just laid out for Senator Reed. If I heard them right, it was more aviation hours and more home station training for regular Army units and, finally, more CTC training time for National Guard.

General MILLEY. Those would be three of the areas. There are other areas, but those would be three. That is correct.

Senator COTTON. Those are the priorities you would spend if you got the first extra dollar in your budget, or are those limited just to your priorities for more readiness?

General MILLEY. Those are readiness dollars.

Senator COTTON. You had mentioned earlier about the soldiers we are sending to fight today and your priority for readiness, which you have said repeatedly during your tenure as the Chief. America's moms and dads, whose soldiers are serving in your Army, at 25 is an enlisted E–5 or a 1st lieutenant, can be assured that you would never send one of their sons or daughters into combat unready to fight.

General MILLEY. That is correct.

Senator COTTON. But that has a cost in modernization. Moms and dads around America, whose 15-year-old son and daughter aspire to be in the Army one day, have to be more concerned about the qualitative overmatch and capabilities of the future Army. Is that correct?

General MILLEY. I think that is also correct, Senator.

Senator COTTON. There is some discussion within the Congress about mandating a certain end strength of the Army at a higher level than 450,000. I think that would be a good idea. I would like to see it much higher than that. Could you talk about the consequences if this Congress does, in fact, mandate a certain end strength without increasing your budget numbers?

General MILLEY. I think if we were mandated to go to a higher size, more soldiers, bigger end strength, and we did not have the dollars, I personally think that would be disastrous for both the Nation and the Army in that we would have to, at the end of the

day, mortgage more modernization of the future. We would have to take down installations, quality of life programs. There are all kinds of things that would have to happen. At the end of the day, I think we would risk literally having a hollow Army. We do not have a hollow Army today, but many on this committee remember the days when we did and when people did not train and units were not filled up at appropriate levels of manning strength and there were no spare parts. All of those things would start happening if we increased the size of the force without the appropriate amount of money to maintain its readiness.

Senator COTTON. Because a mandatory end strength without a budget to match would mean they do not have the money to train, to be equipped, go to CTCs, and so forth. However, you also mentioned the greater risk for modernization. I assume that is because if the Army mandated a certain end strength because of your bedrock commitment to send our sons and daughters overseas fully equipped, fully trained, fully manned, you would take even more money out of modernization.

General MILLEY. That is exactly right. The three levels are end strength, readiness, and modernization accounts. We would have to take down—if end strength went up, then the first one out the door is modernization, and I certainly do not recommend that. If there were a mandated increase in the size of the Army, for whatever reason, then I would strongly urge that that happen with the money appropriate for the pay and compensation, for the readiness, et cetera. Absent that, I think it would be a big mistake.

Senator COTTON. Thank you. I certainly support a much higher end strength than we are on the path to have. I also think it would be deeply inadvisable not to match that with a concomitant budget increase.

Turning to modernization, because of the risk we are facing there, you were speaking with Senator Fischer about some of the commercial technology that we have seen. Could you talk a little bit about your new acquisition authorities and your desire to use more commercial, off-the-shelf technology. You famously said in the Army's handgun program, that if you had—was it $34 million—you could go to Cabela's and buy 17,000 handguns for the Army or something like that? You see it across other domains as well with the global response force desire for enhanced mobility or DCGS [Distributed Common Ground System] versus commercial technology.

General MILLEY. I think the proposals that are out there now on the acquisition reform are absolutely moving in the right direction. I welcome that. I embrace it. I do not claim that I know everything there is to know about acquisition by a long shot. But I think empowering the chiefs to really take greater responsibility and with that, of course, comes accountability—and I welcome that as well. We should get into it. Roll our sleeves up, get after it and get the right equipment to the warfighters in a faster amount of time at a reasonable cost to the taxpayer. The pistol was just one example, but I am bumping into these things all over the place in a wide variety of programs.

There have been an awful lot of sessions going on in the Army over the last, I guess, 6–8 weeks now. I am probably not on a lot

of people's Christmas card list, but that is all okay. Our desire is to make sure our soldiers are taken care of.

Senator COTTON. I cannot imagine that. Maybe they just want to bring you home for Thanksgiving.

General MILLEY. That must be it.

Senator COTTON. Well, I imagine you will continue to bump up against that unlike some of your counterparts who cannot go to Cabela's and buy a next generation fighter or bomber or a ballistic missile submarine. There are, of course, a lot of modernization opportunities in the Army that use commercial technology, and I know you are committed to that. Thank you.

My time has expired.

General MILLEY. Thank you, Senator.

Chairman MCCAIN. Fortunately, members of this committee are without controversy.

Senator Shaheen?

Senator SHAHEEN. Thank you.

Thank you both for being here this morning and for your service.

I want to begin by adding my support to those on the committee who believe that we need to deal with sequestration and that it poses an imminent threat to our national security and to a lot of other things with respect to our future.

But I want to follow up on the conversation you were having with Senator Fischer, General Milley, talking about the importance of innovation, technological innovation, to our future. When we were having hearings on the future of our military, one of the things we heard is that as you pointed out, there has been a dramatic decrease in support for R&D on the part of the Department of Defense, and that the one program that has consistently provided the kind of innovation that DOD needs is the Small Business Innovation Research program. I wonder if you could just speak to the importance of that for providing the new technologies that the Army is looking for.

General MILLEY. I think it is a great program and I fully support it. I think small business—not in all cases, but oftentimes small entrepreneurs are the most innovative partly because of survival techniques, I guess, in business. But they tend to be very adaptive, agile, and innovative. Supporting those initiatives in order to take advantage and leverage emerging technologies is something that I fully support.

Senator SHAHEEN. Great. Well, hopefully we can get this reauthorized for next year without the kind of challenges we had the last time we tried to get it reauthorized.

I had the opportunity recently to meet in Brussels with officials from Europe and from particularly Eastern Europe and the Baltics. They were very pleased to see our proposal to increase the European Reassurance Initiative fourfold. You both mentioned in your testimony the threat from Russia.

One concern that they asked me about that I could not answer was why the decision seems to have been made to preposition the equipment, to do the rotational more in Western Europe than in Eastern Europe on the front lines. How do we explain the decision to do that?

General MILLEY. First of all, I would defer an authoritative, definitive answer to General Breedlove because he is the one who determines where that equipment goes and so on and so forth.

But there are a couple of issues here, not the least of which are political negotiations with foreign governments as to where it goes, where you base it, and building the infrastructure to support it and so on and so forth.

What we are going to do is the initial tranche—the unit will bring its equipment. The rotational units will bring their equipment rather than have it prepositioned initially. Then you will see in 2017 and 2018 we will have a prepositioned divisional set of equipment in Europe.

There are advantages and disadvantages to prepositioning and/or bringing it with you. Both are valued.

The advantage of deploying with your equipment is to exercise the strategic deployment systems of the Navy and the Air Force, along with the Army, in order to long haul heavy equipment for heavy brigades. The prepositioned equipment—obviously, the big advantage there is the speed. A combination of both actually is what would be required in time of crisis.

But the positioning of that equipment physically inside Europe, I would like to defer that logic and rationale to General Breedlove, if that is okay.

Senator SHAHEEN. It is. I have had the opportunity to ask him about it. But it sounded to me like you are saying that the locations are based not just on their military effectiveness but politics have also been part of those decisions.

General MILLEY. I mean, sure. There are political negotiations, you know, diplomatic negotiations between countries that have to occur before we get that locked in.

Senator SHAHEEN. One of the things that, obviously, our continued readiness depends on is the effectiveness of our Guard and Reserve. I was pleased to see that this budget included two military construction projects in New Hampshire that are very important. Right now, we rank 51st out of 54 in terms of the condition of our facilities and armories. Can you—I do not know. Maybe this is appropriate for you, Secretary Murphy—talk about how we ensure that the National Guard has the resources that it needs to be ready whenever we expect them to deploy?

Mr. MURPHY. Yes, Senator. The National Guard—we are a total force. We are not three different forces. We are one Army, one team.

Senator SHAHEEN. Sorry to interrupt, but sometimes the resources do not always seem like we are a total force and one team.

Mr. MURPHY. Ma'am, all I can tell you is that when you look at MILCON [Military Construction] to the $1 billion budget, 10 percent went to—again, the MILCON, which is part of the budget—it has been the lowest it has been in 24 years. But when you dive down in the numbers like I have, you know, Hooksett, $11 million; Rochester, $8.9 million because we are one team. There is a different leadership because we were asking a whole heck of a lot like we have the last 15 years and the next 10 years. There are not two different teams. We are one team. We are getting after it and we

are giving them the resources they need to make sure that they do not have a fair fight and they have the resources in MILCON.

But my other comment, ma'am. I mean, we have mortgaged modernization. I know time has run out, but I can expand on it later if you would like me to.

Senator SHAHEEN. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Wicker?

Senator WICKER. Thank you, Mr. Chairman.

General Milley, earlier this week, Lieutenant General McMaster testified before the Airland Subcommittee. Our chairman has already alluded to this in his opening statement. But his quote is exactly as follows. We are outranged and outgunned by many potential adversaries. He also said our Army in the future risks being too small to secure the Nation.

Now, do you agree with his statement in whole or in part?

General MILLEY. In part. H.R. [Herbert Raymond] is one—I love him like a brother.

To say "many" is probably an overstatement. But to say that the gap is closing, the capability gap is closing between major great power adversaries and the United States in terms of ground forces, absolutely true. I think that was the intent of what he was trying to say.

In terms of size of the force, yes, I agree with his comment on size of the force. But outranged, outgunned on the ground, I think it is a mixed bag.

Senator WICKER. Are we outranged by any potential adversary at this point?

General MILLEY. Yes.

Senator WICKER. Which ones would that be?

General MILLEY. I would have to say the ones in Europe, Russia on the ground.

Senator WICKER. Would you tell the committee what it means to be outranged by Russia?

General MILLEY. Well, with either direct or indirect fire systems, the ground-based systems, tanks, artillery, those sorts of things. I would have to get you the actual range of all these weapons. It is not overly dramatic, but it is the combination of systems. We do not like it. We do not want it. But, yes, technically outranged, outgunned on the ground, I think that is factually correct.

Senator WICKER. Outranged and outgunned would have the same definition as far as you are concerned. We are outranged and outgunned by Russia to some extent at this point.

General MILLEY. That is correct.

Senator WICKER. Now, what does that mean for our Nation's security?

General MILLEY. Well, again, it depends on what we want to do relative to—in Europe, for example. The fundamental task there is to deter, maintain cohesion of the alliance, assure our allies, and deter further Russian aggression. If we got into a conflict with Russia, then I think that it would place U.S. soldiers? lives at significant risk.

Senator WICKER. What specifically should we do? What steps should this committee and this Congress take to reverse these trends and maintain the Army's supremacy over our adversaries?

General MILLEY. I think there are a couple of things. One, I think in terms of the capability of the force, a subset and the most important one is what is emphasized in this budget is readiness. That has to be sustained.

What is readiness? It is manning, making sure that we have got enough people to man the organizations at appropriate levels of strength.

Senator WICKER. We are okay there.

General MILLEY. It depends on the unit. We have a lot of non-availables in the force, for example, right now. It depends on the given unit. Right now, ideally you would want a unit to be well above 90 percent before you sent them off to combat. That is not necessarily the truth. Then when you get the availability of the force, you start peeling this back unit by unit, you will find that the foxhole strength, the number of troops that a given battalion or brigade that deploy to, say, NTC or JRTC [Joint Readiness Training Center] is not necessarily what you might have expected just from the paper numbers. Manning is an important piece. That is the end strength.

The equipping piece is critical, things like spare parts. First of all, do they have the right and most modern equipment? Secondly, does the equipment work? That is a work in progress.

More or less, manning and equipping is not too bad. Training is the long pole in the tent. Then there is more to it. It is leadership, cohesion, and good order and discipline and trust of the force. All of those in combination equal readiness. I would say that the number one thing, at least near term, would be readiness.

But then in addition to that, because we have to look past lunchtime here, in addition to readiness, we have got to reinvest in our modernization and R&D over time. That is what H.R. was getting at. If we continue to attrit that, as we have over the last eight years—8 to 10 years or so—if we continue to attrit that, then that will result in a bad outcome 5 to 10 years from now. I think those are the two things I would offer to you, Senator.

Senator WICKER. Thank you very much. Perhaps you can elaborate on that.

I do need to ask you about the light utility helicopter. You recently published an unfunded requirement for 17 Lakotas in fiscal year 2017. Of course, I was relieved to hear that. But can you elaborate on how these 17 Lakotas in your EUFR would be utilized and what risk would occur if you do not receive those 17 Lakotas?

General MILLEY. Yes. Those 17 are specifically tied to the National Commission's recommendation, which we owe you a response to their recommendations. They have got 63 recommendations. A lot of them have to do with aviation.

The 17 Lakotas are specifically tied to their recommendations, and they would be utilized at Fort Rucker to free up Apaches to go to the Guard. They would specifically be utilized to train new helicopter pilots. As you know, the Lakota is not a combat aircraft. We have divested it, stopped procuring it. It does have great utility for things like training areas, using them as op forward to simulate

enemy aircraft, using them as a medevac aircraft, use it to train pilots, and so on and so forth. But it is a not a combat aircraft. We have chosen to divest ourselves of it. But the 17 are in there specifically to use as training aircraft at Fort Rucker, and it is linked directly to the National Commission's recommendations.

Senator WICKER. They will free up combat——

General MILLEY. They will free up combat aircraft that we could then transfer to the National Guard to execute the other parts of the commission's recommendation.

Senator WICKER. Thank you, sir.

Chairman MCCAIN. General, would you add retention to that list?

General MILLEY. Yes. Retention, recruiting talent. I mentioned the modernization piece, but the readiness piece is the most important piece. But absolutely to the list is retention.

Chairman MCCAIN. Senator King?

Senator KING. Thank you, Mr. Chairman.

First, I want to associate myself with your comments in the opening statement and perhaps put a bit of context. We had a meeting in the Budget Committee yesterday talking about overall budget issues. I think what a lot of people do not realize is that the expenditures for defense and non-defense discretionary as a percentage of GDP [Gross Domestic Product] have fallen dramatically in the last 50 years and dramatically in the last 25 years to the point where defense as a percentage of GDP is now the lowest it has been in 70 years, 3.3 percent. In 1965, it was about nine percent. It has fallen almost by two-thirds. We always focus on the numbers, which are very big, but as a percentage of our economy we are, as I say, at one of the lowest levels since World War II.

Secondly, the budget numbers that we are now working with were established in 2011 before Syria, ISIS, Ukraine, Russia's militarization of the Arctic, China's race to military modernization, North Korea's nuclear capacity, cyber, encryption, and of course, on the domestic side, something like what we have seen in the last few years in the heroin epidemic.

In other words, we have locked ourselves into a straightjacket of financing that does not allow us to deal with current realities. It is absolutely beyond comprehension that we should do this, particularly given the sacred responsibility in the preamble to the Constitution to provide for the common defense. That is the most fundamental responsibility of any government to keep its people safe. We are knowingly just blindly going through this process of trying to continually meet these new challenges that were established since these numbers were set up as the limits and fit the response of this country into a continually shrinking package. It is irresponsible and we have to start talking about the larger picture.

To move beyond budgets, during the break, I spent some time in Poland and Ukraine. They are talking about a new kind of war, and I want to ask you, General Milley, about a new strategy and a new doctrine. They are talking about hybrid war, what happened in Ukraine, not a frontal attack, not sending in the Russian army, not sending tanks across the border, but using some indigenous Russian language speakers, some troops but not in uniform necessarily, a new kind of incursion, which clearly is a possibility in

the Baltics, which are NATO [North Atlantic Treaty Organization] allies.

General Milley, what is your thinking? We need to have a new strategy to deal with this. This is probably what the next conflict might look like.

General MILLEY. Well, it is clear that in the Russian case, they are using a new doctrine that was developed, I guess it was, 2005, 2006, 2007, 2008 time frame by General Gerasimov and others. They have various names for it, indirect war, hybrid war, et cetera.

What they are trying to do, I think, is to advance their interests at levels below direct armed conflict with the United States.

Senator KING. How do we respond?

General MILLEY. I think one thing is the indigenous peoples of that region, the frontline states, if you will. The Baltics is an example. They want to be able to defend themselves and we should take actions and authorities and appropriate resources and help them to defend themselves because they are NATO Article 5 members. That is I think fundamental.

Secondly, I think a lot of training exercises. I think what is embedded in the ERI [European Reassurance Initiative] relative to the Army piece—this is very, very important. We need to send a very strong message to the Russians. I think we are doing that by prepositioning equipment, rotating heavy forces, in this case an armored brigade, and conducting well over 40 exercises in Europe to let our allies know we are there and to let our enemies know that we are there.

Senator KING. I was surprised to learn over there that one of the ways we are really getting hammered is by a very effective propaganda and disinformation campaign on behalf of the Russians.

General MILLEY. Correct.

Senator KING. It drives me crazy that the country that invented Hollywood and Facebook is losing the information war. We have got to do that better. They are laying the groundwork for this kind of hybrid war by a disinformation and propaganda campaign that is creating the rich soil in which a hybrid war can take place.

General MILLEY. They are using all means of national power. They are using information. They are using the cyber domain. They are using space capabilities, as well as ground special operations, naval, et cetera. They are acting very aggressively relative to their neighbors and they are using all of those techniques, many of which are not necessarily new. There are new systems to deliver those techniques.

Senator KING. But we put the USIA out of business in 1997. We have got to get back into the business of communications, it seems to me.

General MILLEY. That is right. That is correct, Senator.

Senator KING. I am out of time, but I want to commend you for the comments you made about procurement. We have got to start talking about 80 percent solutions, not perfect weapons and commercial, off-the-shelf. I think quite often—I mean, the old saying is the best is the enemy of the good. We need more timely and more affordable development of systems that use commercial, already available, already developed, already R&D'd equipment to the maximum extent feasible. We cannot keep going for these very perfect

weapon systems that everybody has a piece of. I think your role as a chief in this process is very important.

Thank you very much, Mr. Chairman.

General MILLEY. Thank you, Senator.

Chairman MCCAIN. Senator Sullivan?

Senator SULLIVAN. Thank you, Mr. Chairman.

I want to thank both you gentlemen for a couple things. As the chairman mentioned, General Milley, your forthright testimony—it is very much appreciated on these what are clearly difficult issues.

Secretary Murphy and General Milley, you know, the commitments you had made earlier about coming up, taking a look at some of the issues in Alaska, and kept you word on that, made an independent judgment after a very thorough review—I appreciate that as well.

I also want to let you know that I think it is safe to say on this committee we are working—not that you are not doing a great job there, Secretary Murphy, but we are also recognizing the importance and quality of Mr. Fanning in terms of what he represents for the Army. I think a number of us are committed to working on that issue.

General Milley, I want to go back to your statement in your testimony, which I think is a really big deal. It is kind of a warning bell. But when a Service Chief of the most important ground force for the most important military in the world talks about high military risk, that is a pretty remarkable statement. I certainly hope that Members of Congress will recognize what a remarkable statement it is.

At what point does that become unacceptable risk? There was a subcommittee hearing recently with a number of the senior members of the military. Whose call is that? Is that our call as oversight and policymakers? Is that your call? Is that Secretary Carter's call, the chairman's, the President's? But, you know, we use "high risk," but at what point is that unacceptable for where we are? Are we looking at another Task Force Smith situation that I know the Army and many other historians look at with a lot of trepidation.

General MILLEY. Thanks, Senator.

My job is to provide my best military estimate of what the risk is. It is our civilian leadership to determine whether that risk is acceptable to the Nation or not.

Senator SULLIVAN. Just for the record, I believe when you are saying high military risk, which not many Service Chiefs in my recollection make that statement, it is a pretty important and significant statement. I certainly believe it is unacceptable risk for the country and, as you mentioned, for our troops.

General MILLEY. Again, it is up to this body here, the

United States Congress. It is up to the President. It is up to my civilian leadership to determine whether it is acceptable to the Nation. I think it is high military risk.

Senator SULLIVAN. Well, thank you again for your forthright testimony on that. I know that is not an easy statement to make.

I want to go back to Senator Manchin's question, which I thought was a very good one. He asked you, well, then at what level forces would we need to actually bring that risk down to something that is medium or low risk. He talked in terms of the overall number.

I want to actually ask the question more specifically with regard to the Active force.

Just so I am clear, the high risk assessment is that our number of 450,000 Active Duty soldiers—is that correct?

General MILLEY. The high risk assessment is based on the total Army not just the Active. I based it off the 980,000 because—and again, it is based on the contingencies of these higher end threats. The National Guard and the United States Army Reserve are going to play a fundamental role if in fact one of those contingencies were to happen. I based my risk on the total Army, not just the regular Army.

Senator SULLIVAN. Have you looked at the 450,000 number and what will we need to get to a number on the Active force that would bring down that risk? I think again a number of us on this committee, bipartisan, believe the 450,000 number is too small.

General MILLEY. Well, I did. You know, we have got a variety of studies that we did to determine the size of the force relative to the National Military Strategy and the Defense Planning Guidance. That answers the question of, you know, for what, what do you need the Army for. Well, you need it to do these tasks. We did that. We did the mission analysis. We did the associated force structure requirements. It is my estimate about a 1.2 million-man total Army would be required. Again, the money is not there.

Senator SULLIVAN. Do you have that broken down?

General MILLEY. We do. We have broken down with Active, Guard, and Reserve. The Active piece of that comes out at just a little more than 500,000 or so.

But it is not just numbers, of course. I know you know this, but it is not just numbers. It is the readiness of that force. It is the technological capability of that force. It is how that force plays into the joint force. It is how we fight. It is the doctrine. It is the sum total of all of those things.

We tend to laser-focus on size. I think that is critical, capacity, size. I think that is fundamental to the whole piece. But there are other factors to calculate beyond just the numbers of troops, and I think it is important to consider that.

Senator SULLIVAN. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Heinrich?

Senator HEINRICH, Secretary Murphy and General Milley, I think from the hearing today, it is clear that we all agree you are rightly prioritizing the readiness of our men and women in uniform. But it is also very clear that because of the budget box that we have put the Army in, that we are not modernizing at a level necessary to stay ahead of our adversaries the way that we have in the past.

I am a big believer in directed energy. It is where I started my career. I have seen not only what is possible but what is capable today. I believe it should be a fundamental piece of the Department's third offset strategy.

If we are trying to truly develop a future weapon system that changes the nature of warfare as we the in the past, just like, Secretary, you talked about with the advantages of night vision goggles, GPS, we have to invest in the technologies that will give us

a qualitative technological advantage to ensure that we have an unfair fight with the enemy.

Unfortunately, this committee was informed that none of the funding provided last year by Congress for the tech offset initiative is going towards directed energy despite a clear direction from Congress to do so. I will just give one example. The Army's high energy LMD [laser mobile demonstrator], has already proven capable of destroying 90 incoming mortar rounds and UAVs with its 10 kilowatt laser, and there is a lot more to come.

I want to ask you why there is not more emphasis on directed energy and what is the Army's plan to deliver an operational directed energy system in an environment where I think it is always too easy to invest in more R&D and the next big, fancy thing that is perfect, like Senator King mentioned, when we could be developing and fielding programs today.

Mr. MURPHY. Senator, part of the acquisition—and if I could just make one mention about White Sands real quickly, if that is okay.

Senator HEINRICH, Absolutely. That was kind of my next question.

Mr. MURPHY. It is not directed energy because I just want to make sure. It is on the top of my head.

You all have the largest solar field in America in the Army, and that gives us a savings of $2 million. But when you talk about modernization, you talk about directed energy, et cetera, and modernization programs, when we talk about science, technology, and modernization, you have to follow the money. When I left Congress six years ago, the budget of the Army was $243 billion. We have had a 39 percent cut. We are asking—including OCO [Overseas Contingency's Operations] then and now, what we are asking is the 125 base and 148, including OCO. But when you talk about modernization, we are asking for $25 billion in this budget. It was $46 billion 6 years ago, fiscal year 2011. Again, you have to make these——

Senator HEINRICH, Mr. Secretary, I think we all recognize the stresses that you are under. I think more specifically what I am saying is given the money that was directed by this committee last year to look at third offset and to utilize those specific funds to look at the future of warfighting and how we maintain that qualitative edge, why not more emphasis on directed energy within that specifically?

General MILLEY. Let me pile on here. Again, hard choices. We have chosen to take the R&D type monies and put them into some other areas. We are putting money into directed energy, by the way. But I think you are talking about in terms of scale and proportion that is less than some of the other areas.

One of the reasons is because some of our sister services—we operate as a joint force—are doing a lot of work on directed energy. We do not want to duplicate their work. We want to let them pump their money into it and see what comes out of directed energy weapon systems. Then we will modify that research for application in ground warfare. We can leverage the work of some of our other services, Senator.

Senator HEINRICH, I want to thank both of you for your leadership in strengthening the Army's integrated air missile defense and

certainly in announcing an air defense detachment at White Sands. We are all very excited about that. The increasing proliferation of missile systems by our adversaries means that we have to enhance our training and our expertise to better protect men and women deployed around the world, as well as our Homeland.

Can you just talk a little bit about the sophisticated missile threats that are emerging, what the Army is facing today, and what steps are being taken to counter that threat?

General MILLEY. The countries that I mentioned in my opening statement, specifically Russia, China, North Korea, and Iran, all have increasingly—very sophisticated now and increasingly more sophisticated tiered integrated air defense systems that are very complex, very lethal, and very robust, to the point where U.S. fixed wing air from the U.S. Air Force or Navy assets or rotary wing air from Army and Marine helicopters are at risk. These are terrestrial-based integrated air defense systems in combination with the adversaries' fixed wing air defense systems. It is a growing, increasingly growing capability. You have heard about, I believe, from the Air Force and Navy many times about the anti-access/area denial threats. Those are real and they are in place today, and they are growing in capability.

Senator HEINRICH, Thank you, Chairman.

Chairman MCCAIN. Senator Lee?

Senator LEE. Thank you, Mr. Chairman.

Thanks to both of you for being here. Thanks to your sacrifice and your commitment on behalf of our Nation's security.

The National Commission on the Future of the Army recommended in its report earlier this year that the Army maintain four battalions of age 64 Apache helicopters in the Army National Guard under the aviation restructuring initiative. I would just like to know from either or both of you what has been the Army's assessment of this recommendation and how does the Army plan to react to it, respond to it?

General MILLEY. Thanks, Senator.

Under the direction of the Acting Secretary of the Army, what we have done is a very rigorous study of the 63 recommendations. Right now, more or less about 50 or so we think are achievable at relatively little or no cost or we have already started doing them. There is one that we absolutely disagree with. We recommend no. Then there are about nine—I think it is nine others or 10 others—that do incur some or significant cost in terms of dollars, and we are analyzing that. The one you mentioned is one of those. We are analyzing that.

What we promised the Secretary of Defense is we would give him a written report on our recommendations on which ones we think are good to do, and of those, how would we pay for them, how would we execute, implement those recommendations. The Congress commissioned the commissioners, and that report will come to you after, of course, we submit it to the Secretary of Defense. We expect to do that to the Secretary of Defense on the 15th of April. I guess whatever that is—next week. That report also will be not only signed by the Secretary and I it will be signed by Frank Grass. It will be signed by Tim Kadavy and it will be signed by Jeff Talley, the heads of our National Guard and Reserve. A lot of meet-

ings with all the stakeholders involved so we can come to what we think is our consolidated position.

Thanks for that question. It is a really important priority that we are doing right now, is working through that commission.

Senator LEE. Well, thank you. I look forward to reviewing that when we get it hopefully sometime next week.

Can you tell me—if the Army does decide to maintain Apache capability within the National Guard, can you tell me how the Army would determine where these units would be assigned and what metrics might be used to review the current Apache battalions within the National Guard?

General MILLEY. It would be Tim Kadavy and Frank Grass would analyze needs of the Guard units, look at how they are involved in various war plans or operational plans, and where they stack in the deck of readiness and responsiveness to the speed at which that unit has to respond, and then what Active unit they might integrated into once mobilized. All those factors would be at play. Lieutenant General Kadavy, who is the head of the Guard Bureau—he would make that recommendation to the Secretary and I and Frank Grass, and then we would approve or disapprove or modify that recommendation.

Senator LEE. Thank you.

Following the Chattanooga attacks last year, my office received a lot of calls, emails, letters, and communications of every sort from constituents having connections to all of the branches of the military. These constituents were expressing concerns about force protection at domestic bases and at international bases, especially for their families at soft targets outside the bases.

Tell me what has the Army done to improve force protection in the United States and at bases in Europe and the Middle East where they are sort of targets for attacks, and what other options are being considered, including the possibility of allowing soldiers to carry personal firearms on the base in order to protect themselves.

General MILLEY. I will defer to the Secretary on the policy pieces of that, but I have been involved in that issue for quite some time.

With respect to posts, camps, and stations that are small, isolated, they are outside/inside communities such as recruiting stations, such as Chattanooga, the assessments are done by the local commanders. The Secretary—actually it was previous Secretary McHugh authorized the commanders to go ahead and conduct their assessment and make a determination whether it was appropriate or not appropriate to arm them. He delegated the authority in the assessment to the commanders, which is appropriate. Commanders should make those decisions because one size will not fit all. It will depend on locality, risk, and so on.

But some of the constraints on it: people have to be trained. It must be a government-owned weapon. You cannot carry privately owned weapons, et cetera. That is out there.

Secondly is on the larger camps and installations, a Fort Hood or Fort Bragg or Fort Lewis, for example, in terms of carrying privately owned weapons on military bases, concealed privately owned weapons, that is not authorized. That is a DOD policy. I do not recommend that it be changed. We have adequate law enforcement on

those bases to respond. If you take the Fort Hood incident number two, the one where I was the commander of 3rd Corps, those police responded within 8 minutes, and that guy was dead. That is pretty quick. A lot of people died in the process of that, but that was a very fast evolving event, and I am not convinced from what I know that carrying privately owned weapons would have stopped that individual. I have been around guns all my life. I know how to use them. Arming our people on our military bases and allowing them to carry concealed privately owned weapons—I do not recommend that as a course of action.

Senator LEE. Thank you, General.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Donnelly?

Senator DONNELLY. Thank you, Mr. Chairman.

Secretary Murphy, General Milley, thanks for your service and for your leadership.

I was in Iraq last week to meet with General McFarland, to visit Al Assad out in Anbar province where we are training Iraqi security forces. I met with a number of our soldiers deployed in the fight. As you well know, they are a tremendous credit to our country and to the Army.

I also want to note that it is my understanding that the Army is the first service to meet the annual mental health assessment requirement set out by the Jacob Sexton Act across every component, and we thank you for leading the way in this effort.

Recently there is a report issued by Indiana University. Researchers at IU [Indiana University] have been able to use certain blood biomarkers, in combination with at-base questionnaires, to predict suicidal ideation with 82 percent accuracy and suicide-related hospitalization with 78 percent accuracy. If you would, I would like you, Mr. Secretary, to take a look at this report and let me know how we can be applying research like this to better identify soldiers who might be at risk. Can you take the time to do that, sir?

Mr. MURPHY. Yes, Senator. You have my commitment.

Senator DONNELLY. Thank you very much.

In testimony today, you stated that the Army only has about 1,800 of the 2,100 behavioral health providers necessary for adequate care. Two things. I think one is better education incentives can enable us to fund more care providers, will help boost recruitment and retention. The other is utilizing non-physician provider types, nurse practitioners, physician assistants, licensed mental health counselors to help fill the gap.

Do you support these tools, and do you have any other plans to address that gap that you have between 1,800 and 2,100?

Mr. MURPHY. I do, Senator. We appreciate your leadership on this. There is no doubt we have to get after it.

I would say—I did not mention it—but the embedded behavioral health teams—they have been a great success in that. It is members of their own team in a brigade area where they are out there. There are 60 teams right now. But that really has been a gamechanger, Senator, when you talk about getting rid of the stigma of mental health because it is a readiness issue.

But in regards to when you look at other things—you know, when I was in Fort Hood, they could not hire certain folks because they did not have the certain licensing. We are looking at that, and there is potential that if they have their masters degree but not a license that maybe they can be supplemented to break that because if they do not have a license, what I found, those same people go to TRICARE and we farm out to TRICARE and TRICARE can have those people, but we cannot hire those people.

Again, those things, you know, when I travel and I ask those tough questions to make sure that we could get these numbers up because, as you know, last year was 301 suicides. I write condolence notes every week to fallen soldiers, including the ones that are committed, and to their families and to their children. My first week in this job, three months, you know, we had lost 10 folks in my first week. It is something that weighs on all of us as leaders, but I think the Army is really leading the way and getting after it. But there is much more we can do, and I look forward to looking at that Indiana University report and looking at some of the criteria and certifications.

Senator DONNELLY. This is to both of you, whoever wants to answer.

In my home State of Indiana, Crane Army Ammo—and this is in regards to demil technology. They partnered with researchers at Purdue to try to improve the technology that is used for demil. As they have done this kind of thing, I am interested to know if you have ideas on how we can boost the efficiency of our demil operations. For example, we are spending a significant sum transporting munitions from storage to demil locations. Can we take a look at maximizing proximity of demil operations to demil asset storage locations? I know that is a little bit technical, but are those the kind of things that we can be doing to help look at saving money as we move forward?

General MILLEY. Right now, Senator, we mostly store, as you know, which comes in at—I forget what the exact numbers are, but I think it is something like $2 million versus $20 million to demil.

From a technical standpoint, I will have to get back with the team and get some detail and get back to you and I will provide that to the Secretary so he can get back to you.

Senator DONNELLY. Thank you.

I am running out of time. So, General, I just wanted to ask you, while I was in Iraq, it seems we are moving ISIS out of town after town at the present time. Things are moving in the right direction. The big action that is going to be taking place, as we look ahead, is Mosul. I was wondering in your conversations with General McFarland, with other people in the theater there, how you think that is shaping up as we look forward.

General MILLEY. I took this job in August. I have served multiple tours over there. Went over in September, did an assessment. In September, I thought we were losing. I was absolutely convinced of it. The enemy had strategic momentum September of last year.

Went back in December, and in between I have read the reports and have been in frequent contact and meetings and so on and so forth with the commanders.

You are correct. Things are moving in the right direction. There is progress, but progress is not yet winning. No one should think that this thing is over. It is not. There is a lot of work to be done. It is true the Iraqis have taken Ramadi, and they are currently engaged in the battle of Hit and conditions are being set for the assault on Mosul. There are also significant efforts being done up in the northern areas, and the lines of communication have been cut between Mosul and Raqqa. Our basic strategy shifted in October, and we are seeing the results of that today with significant losses in enemy personnel, key leaders, increased pressure on their finances and loss of territory, and they are under a lot of pressure. We are doing that intentionally, multiple dilemmas, multiple problems, all simultaneous, and we are hitting them in a lot of ways.

All that is to the good, but that is not exactly winning yet. The caliphate has to be destroyed. ISIS has to be destroyed, and they have also chosen to displace some of their forces into Libya and elsewhere and they have counterattacked into Europe. This is a tough fight and it is by no means over yet, and no one should be dancing in the end zone yet. There is a long way to go here.

Senator DONNELLY. I met with a number of the Sunni tribal leaders, and one of the things they said was if I saw you, to thank you for the cooperation and the assistance of the U.S. Army. Thank you, sir.

General MILLEY. Thank you, Senator.

Senator DONNELLY. Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Tillis?

Senator TILLIS. Thank you, Mr. Chair.

General Milley, my colleague here, Senator Sullivan, and I were talking about how much we appreciate your candor and giving us the information we need to be instructed in the job that we have to do.

I want to go back to acquisition reform, either for you, Mr. Secretary, or General Milley. You know, we made several recommendations in the fiscal year 2016 NDAA [National Defense Authorization Act] that was focused on improving cost, schedule execution, and performance.

One question I would have is did you agree with or do you think that some of the things in the NDAA have actually been helpful, if some have and some have not, and then give me some specific examples of how it is changing your execution. General Milley, we will start with you.

General MILLEY. Thus far, Senator, I think it has been helpful. Number one, it changed the tone. That is important. It changes people's views and attitudes, and I think that is not unimportant to clearly and unambiguously insert and pin the rose on someone's chest and hold them accountable, that being the Chief of Staff of the respective service. That also alerts a lot of people as to there are some new rules in town sort of thing.

Secondly, I think for the Army, we have instituted a new process, really a revitalized process of the Army Requirements Oversight Council. It is unambiguous within the Army itself that the Vice Chief of the Army Dan Allyn or myself will be personally approving and are approving the requirements for every single program that the United States Army puts money against.

In addition to that, we have made that a commander-centric program because the United States military operates off commanders. It is not staff-centric. It is commander-centric, and commanders will be held accountable. It is the commanders that are going to generate requirements and commanders that approve requirements.

Then I think one key thing I think that was in the legislation that is important is the role of the Chief of Staff in milestone B authorities. I think that was really good and we appreciate that.

We have made some other recommendations in writing. I would ask you to take those into consideration for enactment.

Thank you.

Mr. MURPHY. Senator, I would say that there is no doubt that we are getting after it with acquisition reform, which is critically important. It is making our system more leaner and more responsive and decreasing the amount of time it takes to put these weapons or these systems back into the warfighters' hands. I think the frequency from when you start from one milestone to the next and the next, the next has improved about 33 percent, but it needs to improve much more greatly than that.

Senator TILLIS. General Milley, some of the key acquisition programs, the joint light tactical vehicle, the Stryker lethality upgrades, and the distributed common ground system—do you consider them to be some of the key programs that we have to focus on for modernization, and can you explain why?

General MILLEY. Yes, they are. The JLTV [Joint Light Tactical Vehicle], the joint light tactical vehicle, mobility piece is very important because once light forces are on the ground and they have been moved strategically by air or sea, for example, what we want to make sure is that they have increased mobility to move around the tactical battlefield. That is a key system for that.

As you know, the HUMVEE [High Mobility Multipurpose Wheeled Vehicle] fleet has been around for a while. Our wheeled ground mobility is going to be split about 50/50, about 50,000 HUMVEEs, about 50,000 JLTVs over time. That is an important system.

The Stryker lethality. When H.R. McMaster—and I am sorry Senator Wicker is not here, but when H.R. McMaster talked about being outgunned and outranged, in direct fire weapons, for example, the Stryker just cannot match a tank no matter which way you cut it. It is a good vehicle. It is a great vehicle, but it is not going to go toe to toe with any tank. That is what General Breedlove has. He has a Stryker regiment over there and a paratroop regiment. He has got light infantry, foot infantry, and Strykers and very little else over there. That is why we are rotating in an armored brigade. Stryker lethality is going to up-gun that particular weapon systems and that is critical and it is important to deterrence.

On the DCGS, I am taking a hard look at DCGS, and I am keenly aware of all the various controversies. My rough assessment is that DCGS is performing reasonably well—the increment two is going to be online here in a couple years—performing reasonably well at kind echelons above brigade. But when we get into the tactical level, we have to move it around and jump it from place to

place, an ease of use for young soldiers, that there is a very high density of training requirement, et cetera.

There may be some other options out there. I am not sure, but taking a hard look at that whole piece on the DCGS. I have got personal experience with it. A very, very good system. At the strategic level, operational level, your ability to pull down national intel assets, et cetera. But when it gets down to the tactical level, more difficult to work with, not quite as fast, and difficult to jump from location to location on a mobile battlefield. We are taking a look at that. But those are important systems, yes.

Senator TILLIS. Thank you.

Actually just in a final comment, I share Senator Sullivan's concerns about—well, first, we appreciate your being clear on what the risk is and what we need to be mindful of. What I think we also need to do—and this comes from a CODEL [Congressional Delegation] that I was on in the Middle East. On the way back, we met with a group of marines who in an almost matter-of-fact way said that this capability that we have to cover threats in the region may be cut in half next year because of other competing priorities. In a matter-of-fact way like they had to do it because of the pressures that they are having on budget and limited resources.

I think that we need to understand this particular case. I am going to follow up in a private setting. We need to do a better job—I told them give us that ghost of Christmas future. Give us a real meaningful idea of what your risk is going to look like if we are not successful. I know the chairman hopes to be successful with ending sequestration, but we also need to recognize that it is a high threat that we may have to deal with. If we do, what does that look like? If we are already concerned with where we are, where do we go from here?

With the chair's indulgence, Secretary, you can——

Mr. MURPHY. If I could just real quick, Senator. I would say we know what the numbers are going to be if sequestration, which is grave—we are already testifying today that this is minimally adequate right now, but if you would go back to sequestration, if the Congress of the United States does this, we are down on the Active Duty side at 420,000, and that is not acceptable.

Chairman MCCAIN. Senator Hirono?

Senator HIRONO. Thank you, Mr. Chairman.

General Milley, as the rebalance to the Asia-Pacific takes shape, while we do not stop training for the types of environments that we face in Iraq and Afghanistan, we also look to enhance our soldiers, sailors, airmen, and marines to perform in the Asia-Pacific. One of these environments that must be—that we have to be able to handle is the jungle environment. Our last official schools to perform jungle training were closed decades ago, there is an opportunity for our troops and our allies to learn how to perform in this environment, and this would be at the jungle operations training course at Schofield Barracks in Hawaii.

Can you talk a bit about the importance of this kind of training for our soldiers' readiness, as well as the ability to train members of other branches of our armed services as well as those of our allies?

General MILLEY. Thank you, Senator.

Environmental training is very important. As I mentioned in my opening statement, the United States Army has to be prepared to deploy anywhere on earth. There are many, many places that have jungles or heavily forested areas.

We did close our jungle school years ago, and General Flynn, commander of the 25th Division, and General Fuller, the previous commander, set up the jungle school out in Hawaii out in the Kiukas. It is a good school. It is a great school in fact, but it is mostly locally used right now. But I think we can expand the usage of that to other forces so they can get some environmental training.

We do winter warfare training in Alaska. We do urbanized training at the training centers, and we do rural training at most installations, and we do jungle training in Hawaii. It is a critical thing. Environmental training is important to keep soldiers up to speed so we can operate in any particular environment.

Senator HIRONO. Is there any effort or any move to expand or strengthen the jungle training school's facilities?

General MILLEY. He is operating the jungle school right now out of his own budget. I am taking a look at it. I did ask them—it is funny you asked because I asked him about, I guess it was, a month or two ago. I said send me the full POI [Program of Instruction]. I want to see the program of instruction. I want to see the program of instruction that you are using out there because I am considering anointing it as an official Army school as opposed to just a local 25th Division school. There are some things that come with that for soldiers, and you get awarded a little certificate and so on and so forth. It is all good.

But baseline premise of what you are saying, though, is absolutely accurate. It is environmental training to be able to operate in any part of the world, and we support that. I am looking actually at expanding that.

Senator HIRONO. Thank you.

Also, General, turning to the utilization of our National Guard, they are an important aspect of our total force. I am pleased to see your confidence in their abilities and support for the associate units pilot program happening this summer, of which the 3rd and 2nd Brigades of the 25th Infantry Division at Schofield Barracks in Hawaii will be a part.

This pilot program will match one Reserve unit with an Active Duty counterpart unit which could lead to more formal training, coordination, improved readiness, guidance, and closer coordination.

Can you comment on this pilot program and discuss the attributes of this kind of coordination and work with the National Guard?

General MILLEY. Thanks, Senator.

The purpose is to increase readiness and increase the cohesion and the bonding of the total Army. Just saying "total Army," just saying we are all one team, et cetera is only so many words unless we walk the walk. We used to have a round out program years ago. It is sort of a revised version of that.

The benefits of it are that the Guard is exposed to the regular Army. Equally important is the regular Army is exposed to the Guard. We break down whatever barriers there may be, internal Army cultural barriers. Then secondly is that each leverages the

other's skills to improve the readiness of the force. Those are the fundamental big benefits of doing this.

But importantly from a national strategic standpoint, if that regular Army unit goes and if we succeed in the pilot program and we get it all wired in the next couple years, if there is a contingency, then those Guard units—it would be my intent anyway that those Guard units would be alerted, marshaled, and mobilized and they would deploy with those Active units. We would in fact have one Army not only in training but in deployment.

Senator HIRONO. I commend you for those efforts because we can talk about one Army and all of that, but you actually have to provide those opportunities for them to interact and to work together in the kind of cohesive way that you are talking about.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Ernst?

Senator ERNST. Thank you, Mr. Chair.

Secretary Murphy and General Milley, I want to thank you for being a very active and cohesive team, and you are really making strides. I will follow up with what Senator Hirono said. I appreciate your efforts with the National Guard, of course, and I think that we have a great relationship there, one team, one fight. Thank you very much for that.

General Milley, I am going to follow up on some concerns that Senator Tillis gave about the vehicle program for our infantry fighters and the rotation that you mentioned for the armored BCTs through Europe.

I am concerned about rotating those units through Europe instead of permanently standing one up in that region. I am just not certain that that will show the commitment that we need to have for our allies in that region, as well as projecting that strength to Russia as well. I am just very concerned about that.

As you know, the National Commission on the Future of the Army included forward-stationing an armored BCT in Europe. That was one of the recommendations, and I agree with that recommendation.

General Milley, do you believe that rotating an armored brigade in Europe is the optimum course of action to reassure our allies and defeat Russian aggression rather than having one permanently positioned?

General MILLEY. There are advantages and disadvantages to both, Senator. I personally actually favor rotation, and here is why.

When we permanently station—first of all, the infrastructure has been torn down over the years. But it would be pretty costly to rebuild some of that stuff for families and PXs and commissaries and schools and all that stuff to permanently station a forward force.

But also important is that when a unit rotates, they have a sole focus, which is to train and be prepared to close with and destroy the enemy. There are no families. Your family is not with you. You are focused. You are mission-focused. I think that in terms of readiness and your ability to deter, assure, and if necessary defeat, I actually think rotation is a better way of doing it.

Then in terms of strategic effect to deter, the idea of permanent presence is that the armored brigade would be permanent. The plan is to go heel to toe. The effect of permanency is being achieved

without the costs of permanency. We are going to deploy an armored brigade for nine months, and right on their heel comes the next armored brigade and then the next armored brigade and then the next armored brigade. There is never a gap between that armored brigade in this rotation cycle that we have set up.

The effect of a permanent armored brigade for General Breedlove will be achieved, and the disadvantages of forward-stationing, costs, et cetera are not going to be incurred. The advantages of rotation, battle focus, mission focus—that does get achieved. I personally think the advantages of rotation outweigh the disadvantages.

Senator ERNST. That is a great explanation and I appreciate that feedback.

I am going to go back to something we have discussed many times over and that is the modular handgun program. I would love to have you visit a little bit more about this. It really has turned into quite a boondoggle. Just to work on this issue has turned into something more than it really should be. I do appreciate your high level of motivation and attention to the issue.

We just want to make sure that we are getting the program right and that we are streamlining this so that we can get a better pistol in the hands of our soldiers. If that is what is needed, that is what we need to do.

Can you give me an update on your efforts and where we stand in this process right now?

General MILLEY. I think you got a little bit of an update or some members of the committee got a little update the other day from General Murray, General Anderson, General McMaster, et cetera, and they described the various levels of pain that folks have been going through.

But it is all good and we are going to deliver. Then we are going to make it right for the soldiers and the taxpayer and make sure that we get a new handgun. I do believe there is a requirement for a new handgun. I think the 9 millimeter Beretta has run its course, and it is more expensive to replace it or to buy new ones or to repair it than it is actually to purchase a new weapon.

I do think the system has been very frustrating in the sense of lots of paperwork, lots of bureaucracy, ridiculous amounts of time, 2 years of testing, $17 million to do a test and so on and so forth.

We are ripping all that apart. We are just ripping all that apart, and we are going to make it better. In short order here, I think pretty soon, measured in weeks not years, we will have some decisions. We will be moving forward, and we will be able to provide the joint force, all the services—we are the lead for the handgun. We will be able to provide the joint force with an acceptable quality handgun that will work and it will do what we need it to do in combat.

Senator ERNST. Thank you. Thank you both very much for your service and attention. I appreciate your candor, General Milley. Thank you.

Thank you, Mr. Chair.

Chairman MCCAIN. Senator Blumenthal?

Senator BLUMENTHAL. Thanks, Mr. Chairman.

I want to thank Senator Kaine for yielding to me.

Just a couple of questions pursuing the line of inquiry that Senator Donnelly began on mental health, the 1,700 of 2,000, roughly, that are needed in terms of psychiatric personnel. Is there a plan to fill those positions, and what is being done to do so?

Mr. MURPHY. Senator, we are getting after it on this issue, and we need to as an Army because it is all about our people and our soldiers. It is our soldiers, civilians, and their families as well. When I gave you the number, as I did earlier, that there were 301 suicides, that is the total force. That is our whole family.

We are looking at things like levels of certification. Do you really need a masters degree? Could you have different things that otherwise—because we got to fill the ranks. We are not just competing out there in the market within the Army. It is other sources of government. It is private industry that are making these investments as well and trying to get these recruiters. We are trying to help make this push that we need these young Americans to go out there, get their degrees, get their certifications, get this profession so we could use them and bring them within our ranks.

But as I said earlier, there is no doubt that a game-changer for the Army has been our embedded behavioral health teams. We have 60 of these teams where it is breaking down the stigma that these professional mental health providers are in the brigade areas.

Senator BLUMENTHAL. I understand that and I commend you on it. As you know, the VA [Veterans Affairs] has a very active recruitment effort using scholarship assistance and loan repayment incentives. I wonder whether the Army is doing the same.

Mr. MURPHY. We are looking at everything, Senator, and we will continue to work with you and your office to do just that.

Senator BLUMENTHAL. I think what is necessary is a plan with specifics, and I understand that great progress has been made. But I think you would agree that more has to be done. I would welcome your working with us and thank you very much.

General, have you received complaints about the EOTech sight? It was a subject of a recent report in the "Washington Post." I am wondering whether any of the men and women under your command have raised questions or concerns about it.

General MILLEY. Senator, I am going to have to dig into that. Obviously, there is something out there or you would not be asking. So, no, personally I have not. That is not ringing a bell, but I will dig into that.

Senator BLUMENTHAL. I would appreciate your doing that and getting back to us.

General MILLEY. You called that complaints at the Equal Opportunity——

Senator BLUMENTHAL. No. It is a sight used on rifles.

General MILLEY. Oh, rifle sights.

Senator BLUMENTHAL. Made by a company named EOTech.

General MILLEY. No, I am not aware of that. I thought you were talking about something else. I am not aware of that.

Senator BLUMENTHAL. Sorry to confuse you.

General MILLEY. Yes, weapon sights. Now you are talking guns, so I am good. No, I have not, but I will look into it and get back to you. I will find out about the EOTech sight. I got it.

Senator BLUMENTHAL. I would appreciate it. You can look for reference to the "Washington Post" of I believe this week. There was a story on the front page about the discrepancies and issues that have arisen with respect to this.

General MILLEY. I will do that. I just made a note.

Senator BLUMENTHAL. Affecting primarily the Army and the Marine Corps.

General MILLEY. Yes, sir. Got it. We will do that.

Senator BLUMENTHAL. Thank you, Mr. Chairman.

Chairman MCCAIN. I take it, Secretary Murphy, that you are taking great effort to implement the Clay Hunt Suicide Prevention Act.

Mr. MURPHY. No doubt. Yes, Senator.

Chairman MCCAIN. I hope that is an outline for—I hope that members of this committee are aware that we passed unanimously the Suicide Prevention Act, which calls for most of the things that we are concerned about. It is not perfect, but I am sure that many of those provisions agreed to unanimously are being implemented.

Mr. MURPHY. That is correct, Chairman, and we are getting after it. We have made great strides in personnel over doubling these teams.

Chairman MCCAIN. Maybe you could tell some of the members of the committee, if questioned, when you get a chance to talk about giving them a report on the progress that has been made. Maybe you could just send a letter to all of us so we can know what measures are being taken. Thank you.

Senator Kaine?

Senator BLUMENTHAL. That would be very helpful. Thank you, Mr. Chairman.

Senator KAINE. Thank you, Mr. Chairman.

Thank you to the witnesses.

I want to also associate myself with the comments of the chair with respect to the effects of sequestration and the need for us to find a better solution.

A compliment and a question. The compliment. Earlier this week, the Army made a decision. There had been an earlier temporary decision, but earlier this week—I actually think it might have been Thursday or Friday of last—a decision to allow an Army captain, Paul Singh, who is a Sikh, to wear both the beard and the turban that is a foundational part of his religion as he serves. He is a combat veteran with an Afghanistan tour. This is something that Senator Gillibrand and I have been writing letters to DOD about for a couple of years. I wanted to just commend you on that.

I am very passionate about this issue. Maybe just being Virginia biased, the statute of religious freedom that Thomas Jefferson authored that became the basis for the First Amendment that basically says in our country, you can worship or not and you will not be preferred or punished for how you worship and you can freely exercise your faith was one of only two ideas that was unique to the American Constitution. The rest of it was a great borrowing job, but freedom of religious exercise and interestingly enough that war should be started by Congress, not the President were the only two things that were unique to our Constitution. It is very foundational.

I know that there are issues of how you balance people's religious practices with you can wear a helmet or a gas mask, and you want people to be who they are without proselytizing. Those are all challenging questions. But particularly in the world we are living in today and in the war of today, sadly in the future, this is becoming more and more important.

All over the world, we see violence and even war that is driven by sectarian tensions whether it is Hindus and Muslims in Myanmar, whether it is ISIL's [Islamic State of Iraq and the Levant] atrocities against religious minorities like Yazidis or Christians or other groups they do not agree with, whether it is—I said Buddhists and Muslims in Myanmar—Hindus and Muslims in areas of India and elsewhere.

You also see, even when there is not war, rifts within armed services. You know, one of the reasons that the Iraq military many cited as having been very ineffective against the initial wave of attacks by ISIL was because of deep sectarian tensions between Sunnis and Shias within the Iraqi military that renders it less effective.

One of the virtues that the United States plays generally and in our military is demonstrating that people can live and work and go to school together with different religious faiths and we can make it work.

I was on a CODEL that Senator Gillibrand led in early January in Israel and Turkey. It was interesting. In both nations, leaders said to us, wow, what is with the anti-Muslim rhetoric that we are seeing in your political space right now. As we dug into it a little bit, what they sort of disclosed is, hey, we live in a neighborhood of the world that has a lot of sectarian tensions, but we do not always want to be that way. But for us to get better, we have to have an example. The U.S. has been our example of a place where people of different faiths could freely be who they are, but we could make it work together.

The decision to allow one Sikh for the first time in history of the Army to wear a turban and beard might seem like a small thing, but it is actually about a deeply critical American value that sadly is really wanting and needed in the world today.

I certainly would encourage the Army and the DOD generally to look at this policy. The defense minister of one of our greatest allies, Canada, is a vet who has been deployed multiple times in Afghanistan. He is a Sikh who has been able to wear his beard and turban in the service. We have got a lot of Sikhs who are in and a lot of Sikhs who would want to be in the military. I would hope that we would recognize that as not only true to our values but also as something where we could hold up an example in the world in a way that is really needed right now.

The question that I have is about the European Reassurance Initiative, and it is a little bit about sequester politics and the readiness issues. The tug of war is in putting the budget together.

We have got all these readiness gaps, and at the same time, the proposal is to quadruple the investment in the European Reassurance Initiative and to take it up to $3.4 billion. I just would be curious as you talk about hard choices, how do you trade off the need to do this dramatic increase in the ERI with the fact that we are

still short in some of the readiness investments that we need to make.

General MILLEY. Senator, the ERI is really important, and it trades off what tradeoffs DOD made to make that happen in other accounts. You know, those are priorities set by the Secretary of Defense.

But I can tell you that the ERI is really important because the deterrence of Russia from further aggression is a critical national security priority. They have been aggressive since 2008. That behavior needs to change. This is only one of many other initiatives that are being done and actions that are being done by the U.S. Government across all domains and by a whole of government approach. But this is important.

Deterrence happens because an aggressor perceives that the cost of further aggression is going to exceed the benefit of aggression. By putting a division's worth of equipment and rotating an armored brigade there, it will be clear, we think, that cost of further aggression, especially into NATO allies like the Baltics or Poland, will come with a very high cost relative to the United States of America.

Senator KAINE. Thank you very much.

Thanks, Mr. Chair.

Senator REED. On behalf of the chairman, Senator McCaskill please.

Senator MCCASKILL. Thank you.

Secretary Murphy, as you are aware, the Army has been investigating concerns regarding the Guard recruiting and assistance program for years. In 2012, a preliminary report of the Assistant Secretary of the Army for Financial Management found that all expenditures made through the RAP [recruiting assistance program] program, a total of almost $400 million, violated ADA [the Anti-Deficiency Act].

At the time, the Army anticipated that a final report on the matter would be released by October 2014.

In late December, trying to be patient, I penned a letter to your predecessor, Secretary McHugh, and asked for a status update on this report.

I need a date, Secretary Murphy. I cannot understand. There is no way this report is not finished. I cannot understand what this stall is about. All it does is just incredibly irritate me that we are this non-responsive in how we fix problems if we are not willing to be forthcoming when we find problems, dealing with the way that our military has spent almost $400 million.

Mr. MURPHY. Senator, I have been straight with you since the beginning that I will always be honest and straightforward with you. I will get you an answer within a week on where it is. I have been here for 12 weeks as Acting Secretary of the Army. I have said what is going with that, and it is said it is coming, it is coming. I will get you an exact date.

Senator MCCASKILL. I do not want you to camp out. But it is coming, it is coming. It has been since October of 2014 that it was supposed to be here. I need that report or I need a date when that report is going to be produced.

Mr. MURPHY. You will have that date within a week.

Senator MCCASKILL. Thank you.

Mr. MURPHY. Just for the record, I have also taken responsibility on the enterprise marketing and that program. Mistakes like that will never happen again.

Senator MCCASKILL. Thank you.

Mr. MURPHY. You are welcome.

Senator MCCASKILL. General Milley, I had the pleasure of a briefing from Colonel Eichoff, the Command for U.S. Air Defense in Europe, last week. I believe she is the first woman to hold that position. I was very impressed and proud and just wanted to convey that.

I was taken aback when she talked about some of the European Reassurance components that are in the budget, that they are all in OCO. You know, there are not very many members left here, but this is like one of these embarrassing things that we are doing. Is there any rational reason why our strength of equipment and troops in Europe would not belong in the regular budget of the military? Have we gone past the Rubicon? Is there now everything we can stick in OCO, we stick in OCO because of the unwillingness of Congress to step up to its responsibility as it relates to sequestration?

General MILLEY. Senator, I will not comment. I do not even know the techniques of whether it is right or wrong or indifferent. What I care about as a member of the Joint Chiefs of Staff, as the Chief of Staff of the United States Army and provide best military advice is to deter Russia from further aggression. Where that money comes from, whether it is OCO or base budget, is frankly somewhat less concerning to me.

What is important to me is that we get a division's worth of equipment and other capabilities over there to help Colonel Eichoff, General Breedlove, General Hodges, to deter aggression from Russia.

Senator MCCASKILL. You and I could not agree more on that. I think most Members of Congress would agree on that. I just think this artifice we are using, this rouse that we are performing on the American public that somehow if we put it in OCO, it does not count as us spending money is damaging long term for the military. We ought to step up. You all step up to our responsibility every day. We ought to step up to our responsibility and fund our military in a way that is forthright, transparent. That sends an important message to the world. Us playing this game that pretending that because it is in this fund, we do not have to pay for it is I think beneath the honor and respect that we should show the military. I just wanted to get that on the record.

General MILLEY. I would second your motion, Senator.

Senator MCCASKILL. First, I want to thank both of you before I ask this question about your trips to Fort Leonard Wood. I know, General Milley, you went, and I know, Secretary Murphy, you were just recently there. I am sorry I could not be there at the same time. I do not need to convince either of you of the importance of that institution as it relates to the generating force, say nothing of the other capabilities, engineering capabilities and military police capabilities and the other joint operations that are so important at Fort Leonard Wood.

But I know as we try to get women into our military in all roles, women in the generating force are very important because they are in fact very visible to women that might be considering a career in the armed services.

I wanted to ask is there any plan in place to get the proper leadership at these training facilities as it relates to gender as we try to encourage more women to say please take me, I am willing to give my life for my country?

General MILLEY. Yes. We try to encourage that throughout the force. As you know, we have got—the infantry and armor have been recently opened up. One principle of that program that we are going to implement, one of the first principles is to put leaders, female infantry leaders in those units first.

Not specific to Leonard Wood, but we are going to graduate now coming up in the May-June time frame from both West Point and ROTC—I think it is 44 women have volunteered to be infantry lieutenants. If they meet all the appropriate standards, then they will go through the various infantry schools, BOLIC [basic officer leadership course], at Fort Benning. Then they will graduate in the fall. Then they will do their follow-on training that is normal for infantry such as Ranger school. If they continue to meet all those standards, then they will be assigned to infantry units sometime about this time next year. January, February, March, April time frame, you will start seeing infantry female, infantry in armor, officers, noncommissioned officers and junior soldiers in those combat units.

The idea of starting with leaders is a fundamental first principle, and there is no doubt in my mind that we want to take advantage of 50 percent of the world's population or the American population and maximize their talent to increase our readiness.

Senator MCCASKILL. Thank you so much. Thank you both for your service and the hard work you are doing. Very appreciated.

Mr. MURPHY. Senator, can I just mention real quick? When I was at the Sapper school graduation, we had three females of the 33 that graduated. Secondly, Army Lieutenant Colonel Lynn Ray, first battalion commander, combat engineer commander. That is—again, as the Chief mentioned, we have instructed and initiated a leaders first program at these units where you have two women per company at the leadership level before we send the lower ranks.

Senator MCCASKILL. You all know how tough Sapper is, and the fact that we have been putting women through Sapper for a number of years—we can learn a lot about how to prepare women for some of the toughest jobs in the military by what they have done with Sapper. Thank you for that, Secretary Murphy.

Senator REED. On behalf of the chairman, let me recognize Senator Gillibrand.

Senator GILLIBRAND. Thank you.

I am going to continue with the line of questioning of Senator McCaskill.

Before he retired, then-SOUTHCOM Commander General John Kelly raised concerns that lowering standards was the only way to ensure that women became infantry SEALs and Rangers in real numbers. That position has been vehemently contested by you and your fellow Service Chiefs, as well as the commander of SOCOM

until recently General Votel. Yet, General Kelly's comments represent prevalent views in combat units.

Do you plan to allow the lowering of standards and how do you both plan to deal with these views from the leadership in junior personnel levels?

General MILLEY. Absolutely not. Standards are standards. Those standards are developed through years upon years of blood-soaked lessons learned from combat. They are neither male nor female. They are combat standards, and they are related to combat. If you meet the standard for combat, then you pass go, collect $200, and move on your way. If you do not, then you do something else in life. Those standards are inviolable. They are based on combat, and we would place unit discipline, cohesion, and ultimately effectiveness at risk if we compromise those standards. We must guard against that. All of us, Members of Congress, members of the executive branch, members of the uniformed military, et cetera must guard against the lowering of standards.

General Kelly and General Votel, their comments exactly right in the sense of raising the flag, a warning flag, that this initiative in the infantry and armored and special forces has the potential to lower standards. The rest of us must be the guardians of those standards. We must not allow the lowering of standards. Those are related to combat. If we do that, we are actually putting at risk the unit and the women that would go into those services and potentially putting at risk the lives of their teammates as well. Standards are inviolable. They must not and will not be lowered.

Senator GILLIBRAND. How do you deal with the views of personnel that you are lowering standards, that the mission of all these women—clearly you have lowered standards? How do you reinforce that these women are properly trained, are ready and have met everything and will do a great job?

General MILLEY. I think there are a couple of things. One is, first, do not lower the standard and then ensure that you educate people that they understand the standards have never been lowered. You know, Ranger school. I have heard a lot of comments about Ranger school, you know, the three women, one of whom was a mother of two, that graduated Ranger school. The standards were lowered. I said really. I said why do you not rock up and start walking 12 miles with 35 pounds on your back? Why do you not climb the hills of Dahlonega? Why do you not run the swamps of Florida? Those standards have not changed. Those swamps have not changed. Those hills have not changed. 12 miles is still 12 miles. It is still a 5-mile and 40-minute run. Those standards have not been changed. They met those standards.

Part of it is education and leadership, making sure that we have everyone understand the standards. But the key principle of do not lower those standards, that is inviolable. We cannot allow that.

Mr. MURPHY. Senator, I would just agree that it is a leadership for our Army, that we could not be more clear that we—first of all, women do not want those standards to be lowered. When they went to Ranger school, they were not asking for it to be lowered. They know they could meet the standard. They met the standard, and that is why they are Rangers. We are a standards-based Army. We

could not be more clear from the top, and it is emanating throughout the force.

Senator GILLIBRAND. But I just hope you have their back when they do pass through these requirements because if they are getting feedback that they are still not good enough, that is problematic, especially since you did not lower the standards. Right?

General MILLEY. I have huge confidence, male or female, if they meet the standard, they will be mutually respected by their fellow peers and soldiers. I have no doubt in my mind.

Senator GILLIBRAND. I do have a doubt in mind that they will not be respected. What I am asking you to do is to be vigilant that these women who do pass and do meet the standards are then respected for meeting the standards because you did not lower the standards. I just cannot tolerate this notion that after these women have been through hell and proven their mettle, that they are still discounted when given their mission.

General MILLEY. There will not be.

Senator GILLIBRAND. Okay.

General MILLEY. If they meet the standard, they will not be discounted.

Senator GILLIBRAND. Good luck. I give you many blessings on that.

I would like to shift to cyber. Last year, the Army National Guard announced the establishment of 10 cyber protection teams, including one in New York and New Jersey National Guards. This was a huge step forward for our national security, and these teams, each located deliberately within nine of the country's 10 FEMA regions, can serve both Federal and State purposes, including bolstering civilian authorities in case of domestic response to cyber attack. New York has already experienced the hacking of a small dam, and we are constantly alerted to the threats of cyber attacks to America's financial hub.

Absolutely no funding in the Army's fiscal year 2017 budget request was set aside for these new units, and months after the announcement, we are still left wondering how they will be supported. I am concerned these teams have not been given a mission by the Army. Unlike the Air Guard Captains they are not designated to the cyber mission forces. The Army has not funded them, and it is not clear when they might get trained.

General Milley, since becoming Chief of the Army, you have made it a priority to talk about one Army and to look for ways to take advantage of the benefits of the different components. How do you envision we can we use the National Guard CPTs to address cyber threats, and do you know why there is no money allocated for these CPTs in the budget? Can you tell us when we might expect to see Army Guard's cyber protection teams fully operational?

General MILLEY. There are 41, I think it is—21 and 10—for the regular Army, split up with offensive and defensive capabilities, and then there are 10 in the Guard, as you noted, and I think there are 10 or 11 in the United States Army Reserve.

They are coming online at various paces. By 2018, all of these teams across the total Army should be trained. I will not say it is super-long, but there is a process that we have to go through of vetting or identifying and selecting and vetting because of the high-

er-order skills involved in cyber war. That goes up front to recruit them and then organize and train and equip these teams.

I will go back and double check, but I think by 2018 all of these teams are online and at least have initial operating capability. I will get you a better answer with a definitive date, if you do not mind, but I think it is 2018.

Senator GILLIBRAND. Thank you both for your service.

Chairman MCCAIN. I am afraid that General Sullivan has another question.

Senator SULLIVAN. Thank you, Mr. Chairman. Just a few to follow up.

Very quickly on lowering the standards, General, just to be clear, that is a joint responsibility. Right? Senator Gillibrand's questions are about the military leadership, but you also do not want Congress to mandate lower standards. Correct?

General MILLEY. I do not want anybody to lower standards, regardless of where they are.

Senator SULLIVAN. You know, General, you have been very focused on this issue of the tooth-to-tail ratio in the Army. This committee has been looking at that. I know you have been looking at that. Are we there yet? Are we at a satisfactory point in terms of what you believe is the proper balance between combat forces and tail forces? Whose responsibility is that? Is that something that you can work out through your authorities as the Chief, or is that something you need additional support from the Congress on? Because I think it is a critical issue, and I commend you for focusing on it so much.

General MILLEY. Senator, you are always looking at tooth-to-tail to make sure you got the right balance in the force structure, et cetera.

I think we have some room to improve particularly in headquarters. I think our headquarters—they played a very important function, and today is different than it was, say, 50 or 60 years ago, advances in technology and information, et cetera, et cetera. But my own observation is I think our headquarters remain still a little bit bigger than what needs to be for combat.

For example, if you were to deploy a brigade or a division, say, the on-the-ground footprint of that headquarters is very large. In today's environment and in tomorrow's environment, increasingly in tomorrow's environment, if you have a large footprint, you are emanating a variety of electronic signals from radios and all these computers and everything else that we have. Given the electronic warfare capabilities, the acquisition and the capabilities of some of our adversaries—Russia, for example—we have seen in the Ukraine they can acquire the electronic signal very quickly. They will fly unmanned aerial vehicles over there, acquire the target, and they will amass artillery on you. You will be dead.

What do we have to do? We need to pare down our headquarters—this is just one example—to very small, nimble, mobile capabilities that can, in fact, survive what we think is the lethal environment that we would see in the future. That could mean increases in reach-back, for example, where much of your headquarters footprint and the processing of intelligence information, the processing of friendly unit situations is done at home station

at a garrison or at a base here in the United States. Given today's technologies and the electronic pipes that are out there today, we can push a lot of that information forward rather than put an 800- or 1,000-man headquarters on some tactical battlefield in the future with nothing but a big target.

We are taking a hard look at that. There is definitely some streamlining that needs to be done to reduce the tooth-to-tail because in my professional opinion, especially in the potential future contingencies we are looking at, large tails are going to result in significant amounts of casualties and potentially battlefield losses or loss of a battle, a campaign, or even a war.

Senator SULLIVAN. Well, I think you have the support of this committee on your focus on that, and please let us know if there is statutory authority that you need additionally to what was in the NDAA last year that the chairman led on the issue of headquarters.

Let me ask one final question. You know, there is a lot of discussion on the end strength. You know, when the Chairman and Secretary Carter were testifying, and in your testimony there is this focus on the conventional challenges, Russia, North Korea, Iran, China, ISIS, other terrorist groups. I think there is this notion—and I would like you to talk about it a little bit—that a lot of what we can defend ourselves with, because there are certainly capable forces, is our special forces. They get a lot of press. They do a lot. They are all over the world. They are incredibly capable.

But I think it is also very important to recognize that on certain of these threats, in fact, almost all the ones that are listed right here, it is the conventional forces that are what we need the most.

Can you talk a little bit about the difference in their capabilities and how important it is to have airborne brigade combat teams that can drop out of the sky 5,000 soldiers, in addition to the special forces? Because I think sometimes there is so much focus on the SF forces, that we lose the focus on how important our conventional forces are.

General MILLEY. Senator, I think there are several myths of war, so to speak, that are prevalent in various communities. One of those key myths I think is that you can win wars from afar, from standoff distances, et cetera. Another key myth is that special forces can do it all. As a proud member of special forces, special forces cannot do it all.

It depends on what you are trying to do. If you are involved in a war, if you are using the language of war and you are defining yourself as at war, then you need to apply all of the synergistic effects of the entire joint force in time and space to impose your political will. That is a lot more than special forces. That is everything from all the domains of space, cyber, naval, air, marines, special operations forces, and conventional ground forces, all of that converging in time and space to rip the shreds out of an enemy if you are at war.

You can do lots of other things. You may not define yourself at war, but you just want to impose cost or you want to attrit or you want to deter or you want to punish. Those things can be done in a variety of ways. You can do that from just standoff weapon systems or perhaps just special forces.

But the idea that special forces can do it all is not true, and the professionals in special forces will be the first to tell you.

One of the fundamental roles of conventional ground forces, whether Army or Marine, is to seize and control territory and deny that same territory to enemy forces. Special forces does not seize and control territory. They never were designed to do that. But if you want to impose your will on an enemy, that is one of the key tasks that is likely going to have to get done if you define yourself in a state of war.

Thanks for the question, but it is a myth out there. It is very prevalent. Special forces has huge talents, love it to death, and they can do a lot of things. But winning wars in and of themselves, not capable.

Senator SULLIVAN. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Some of us think that that myth has been adopted into a Pentagon strategy to defeat ISIS.

General, we will be doing more on this tooth-to-tail issue because it is not only the size of the staffs and bureaucracies but in many cases, it is absolute duplication of effort. Different branches of the Defense Department have staffs that are all doing the same thing, and that is one of the aspects of reform that we will be acting on in this year's NDAA.

Secretary Murphy, to each member of the committee, if you would send a letter describing what actions are being taken on this whole issue of mental health, suicide, I would appreciate it. Obviously, from what you have heard today, there is significant interest in the issue, as there is amongst the American people. We have to work on this suicide rate not only of Active Duty personnel, but we also know that 8,000 veterans a year are committing suicide as well. That has to be one of our highest priorities.

We thank you for your very forthright testimony. I think this has been a very beneficial hearing, and I thank you.

Senator Reed?

Senator REED. I just second those comments, Mr. Chairman, and thank the witnesses for their service and their testimony. Thank you, Mr. Chairman.

Chairman MCCAIN. You are still too young, Mr. Murphy.

[Laughter.]

The CHAIRMAN. The committee stands adjourned.

[Whereupon, at 11:56 a.m., the hearing was adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2017 AND THE FUTURE YEARS DEFENSE PROGRAM

TUESDAY, APRIL 26, 2016

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

F–35 JOINT STRIKE FIGHTER PROGRAM

The committee met, pursuant to notice, at 10:04 a.m., in Room SD–G50, Dirksen Senate Office Building, Senator John McCain (chairman) presiding.

Committee members present: Senators McCain, Inhofe, Sessions, Wicker, Ayotte, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Lee, Reed, McCaskill, Manchin, Shaheen, Gillibrand, Blumenthal, Donnelly, Hirono, Kaine, and King.

OPENING STATEMENT OF SENATOR JOHN McCAIN

Chairman MCCAIN. The committee meets today to consider the status of the F–35 Joint Strike Fighter program as we review the fiscal year 2017 budget request.

I welcome our witnesses, Under Secretary of Defense for Acquisition, Technology and Logistics Frank Kendall; director of Operational Tests and Evaluation, Dr. Michael Gilmore; program executive officer for the F–35, Lieutenant General Christopher Bogdan; and director of Acquisition and Sourcing Management for the Government Accountability Office, Michael Sullivan.

The F–35 Joint Strike Fighter program is the largest and most expensive acquisition program in Department of Defense history. The full capabilities this aircraft will eventually provide are critical to America's national security, our ability to deter our potential adversaries around the globe, and, if necessary, respond with overwhelming force to any future conflicts that may require military intervention.

At the same time, the F–35 program's record of performance has been both a scandal and a tragedy with respect to cost, schedule, and performance. It is a textbook example of why this committee has placed such a high priority on reforming the broken defense acquisition system.

The F–35 schedule for development has now stretched to more than 15 years. Costs have more than doubled from original esti-

mates. Aircraft deliveries amount to no more than a mere trickle relative to the original promises of the program.

The original F–35 delivery schedule promised 1,013 F–35s of all variants would be delivered by the end of fiscal year 2016. In reality, we will have 179. Because the Air Force, Marines, and Navy were all counting on the F–35s that never appeared, combat aircraft and strike fighter capacity shortfalls in all three services have reached critical levels, severely impacting readiness and ultimately limiting the Department's ability to meet the requirements of the defense strategy.

In the Department's fiscal year 2017 budget request, dozens more aircraft are being deferred from the future years defense plan, resulting in a situation where the last F–35 will be delivered in 2040.

I cannot fathom how this strategy makes any sense, purchasing combat aircraft with a 40-year-old design in light of all the testimony this committee has received about how our potential adversaries are rapidly catching up with and, in some cases, matching America's military technological advantages.

Those F–35 aircraft being delivered are not being delivered as promised. They have problems with maintenance, diagnostic software, radar instability, sensor fusion shortfalls, fuel system problems, structural cracks from service-life testing, engine reliability deficits, limitations on the crew escape system that caused pilot weight restrictions, and potential cyber vulnerabilities. This list is as troubling as it is long.

At long last, we are approaching the end of the long nightmare known as "concurrency," the ill-advised, simultaneous development, testing, and production of a complex and technologically challenging weapons system that the Department estimates will end up costing the American taxpayers $1.8 billion.

But many questions remain, such as the total number of these aircraft the Nation should buy or can even afford, the cost of future upgrades to keep these aircraft relevant in the face of an ever-evolving threat, and the management and administration of a so-called joint program that General Bogdan himself has admitted consists of aircraft that have only 20 percent to 25 percent commonality across the three variants as compared to the original goal of 70 percent to 90 percent.

The F–35A, F–35B, and F–35C are essentially three distinct aircraft with significantly different missions and capability requirements. The illusion of jointness perpetuated by the structure of the F–35 joint program stifles the proper alignment of responsibility and accountability this program so desperately needs.

There are also questions as to when the system development and demonstration phase, or SDD, will actually be completed so that initial operational tests and evaluation can begin. Originally scheduled to conclude in 2017, we have every indication that schedule pressures will likely extend SDD well into fiscal year 2018.

I am very concerned the Department may attempt to take shortcuts by deferring mission capability content into later block upgrades and, by doing so, shortchange the warfighter once again by delaying necessary capabilities.

The F–35 was designed to replace multiple aircraft of all three services, the A–10, the F–16, the F–18, and the Harrier. That is why the operational testing and evaluation must be of such high fidelity.

There can be no question in the minds of the American people that their gigantic investment in this program will pay off with greatly improved capabilities that far surpass the mission capabilities of all these individual combat aircraft. The Congress will not likely allow any more of these legacy aircraft to be retired from service until there is no doubt the F–35 can adequately replace them. Nor is the Congress likely to entertain a "block buy" or other multiyear procurement scheme until the initial operational test and evaluation is completed and a positive milestone decision is made to commence full-rate production, both of which I understand are scheduled to occur in fiscal year 2019.

The Department appears to be considering managing the F–35 follow-on modernization, which is estimated to cost over $8 billion for the first block upgrade within the overall F–35 program. This is incredible given the Department's dismal track record on these upgrade programs as the F–22A modernization and upgrade debacle showed.

I have seen no evidence that DOD's processes have improved to a level that would remove the need for a separate major defense acquisition program that would enable close scrutiny by Congress. Moreover, I expect the Department to use fixed-price contracts for the F–35 modernization effort in order to protect taxpayers.

Despite this programs many stumbles, there are some positive signs for the F–35. The Marines declared initial operational capability, or IOC [Initial Operating Capability], last July in Yuma, Arizona, and are preparing for their first F–35B overseas deployment next year.

Air Force personnel at Hill Air Force Base in Utah who fly and maintain the aircraft are preparing for Air Force IOC this fall. They report that the latest lots of F–35As are flying very well with a significant jump in reliability in warfighting capability as compared to earlier aircraft.

General Bogdan has steadily pushed down aircraft procurement unit costs; reliability metrics are on the rise; and each lot of aircraft deliveries possess increasingly effective warfighting capabilities.

All of this is a testament to hard work of military and civilian personnel inside this program today. They are doing their best to overcome misguided decisions taken long ago, and they are having success in important areas.

However, there is a lot of development left to complete in this program, and with it comes the potential for more problems, schedule delays, and increased costs. This committee will remain steadfast in its oversight responsibilities to ensure our warfighters get the capabilities they need on time and at reasonable cost.

Since a quorum is now present, I ask the committee to consider a list of 920 pending military nominations. Included in this list are the nominations of General Vincent K. Brooks, USA, to be commander of United Nations Command, Combined Forces Command, U.S. Forces Korea; General Curtis M. Scaparrotti, USA, to be Com-

mander of U.S. European Command and Supreme Allied Commander Europe; and General Lori J. Robinson, USAF, to be Commander, U.S. Northern Command, Commander North America Aerospace Defense Command.

All these nominations have been before the committee the required length of time.

Is there a motion to favorably report these 920?

Senator REED. So moved.

Chairman MCCAIN. Is there a second?

Senator AYOTTE. Second.

Chairman MCCAIN. All in favor, say aye.

The motion carries.

Senator Reed?

STATEMENT OF SENATOR JACK REED

Senator REED. Thank you very much, Mr. Chairman.

Let me join you in welcoming the witnesses today. We are grateful for your service. Thank you very much, gentlemen.

Today, we will seek a better understanding of the progress the Department is making in fielding the Joint Strike Fighter; what actions the Department has taken to ameliorate problems with the program; what is the best judgment available of how effective these actions will be in preventing problems with the program, including additional cost overruns and delays.

Overall, the production program has been delivering on expected cost reductions on aircraft lots. However, we still have to complete the system development and demonstration, SDD [System Development & Demonstration], program that is expected to deliver complete warfighting capability of each of three variants of the F–35. We may not have seen all the potential schedule changes in SDD, since not all the program difficulties are behind us.

Quoting from Dr. Gilmore's prepared testimony, "Although the Marine Corps has declared initial operational capability, IOC, and the Air Force plans to do so later this calendar year, the F–35 system remains immature and provides limited combat capability, with the officially planned start of initial operational test and evaluation, IOT&E [Initial Operational Test & Evaluation], just over 1 year away."

Dr. Gilmore also says assesses that the F–35 program will not be ready for IOT&E until calendar year 2018 at the soonest, and these assessments are of concern.

Several years ago, we required the Department to estimate the dates for initial operating capability, IOC, of the three variants to the F–35. The Marine Corps declared IOC last year in July. The Air Force is scheduled to declare IOC later this year. The Navy is scheduled to clear IOC in 2018.

The Marine Corps IOC was based on a version of the program software called the Block 2B. The Air Force's declaration of IOC will be based on the Block 3i software. The Navy's declaration of IOC will be based on the Block 3F software version.

Until recently, in order to support the IOC dates, the program office has been working on versions of both Blocks 3i and 3F of the software simultaneously. The Block 3F software depends on having a stable baseline for the Block 3i software.

With the contractor team working on multiple releases of software, correcting deficiencies and achieving software stability has proved elusive. Working on the two software packages simultaneously was intended to save time, but that time was lost when the project had to be redone because of mistakes stemming from concurrency.

Within the past year, the program executive officer halted work on the Block 3F software until the problems with the Block 3i software could be sorted out. We need to understand what effect this altered approach may have on the overall program schedule.

Beyond that, we are planning for sizable upgrades in F–35 capability through spiral development efforts to the Block 4 program. The Block 4 program will likely be a multibillion-dollar effort. We want to make sure that we do not repeat past mistakes.

Beyond the SDD program, there is an even larger issue of the cost to sustain the F–35 once we have bought it. These estimates were at one point as large as $1 trillion. We need to understand what the Department is doing to reduce these potential costs. If we do nothing, we run the risk of allowing increased costs to sustain and support the F–35 to reduce the funds available for investment in the future force.

This committee has been a strong supporter of the JSF program from the beginning. However, we must continue our vigilance on cost so there is a proper balance between F–35 and other important DOD acquisitions.

Thank you very much for calling the hearing, Mr. Chairman.

Chairman MCCAIN. Thank you.

I welcome the witnesses.

Secretary Kendall?

STATEMENT OF HONORABLE FRANK KENDALL III, UNDER SECRETARY OF DEFENSE FOR ACQUISITION, TECHNOLOGY, AND LOGISTICS

Mr. KENDALL. Thank you, Chairman McCain. Chairman McCain, Ranking Member Reed, members of the committee, I am happy to be here today with Lieutenant General Bogdan, the program executive officer for the F–35 program, as well as with Dr. Gilmore and Mr. Sullivan, to discuss the status of the program and the President's Budget request for fiscal year 2017.

In my opening comments, I would like to discuss my own involvement with the F–35. Lieutenant General Bogdan will provide more detail on the current state of the program.

My first exposure to the F–35 was in the fall of 2009, as I was awaiting confirmation to be the Principal Deputy Under Secretary for AT&L. I was briefed by a member of Dr. Gilmore's staff, and my reaction at the time was one of surprise at the extremely long period of low-rate initial production, approximately 10 years, and at the very high amount of concurrency in the program, as you mentioned, Mr. Chairman, concurrency being the overlap in this case between development and production. It was one of the highest and, therefore, most risky that I had ever seen.

Production was started in 2007, well before the stability of the design could be confirmed through testing. I later called the deci-

sion to start production so early acquisition malpractice, a phrase which seems to have stuck.

In early 2010, also before I was confirmed, the program manager was replaced. The new program manager was Admiral David Venlet, a very seasoned and competent professional. At that time, the F–35 went through a Nunn-McCurdy review, as a result of the cost increases. As a result of the review, the program was rebaselined under Admiral Venlet to the baseline that it is operating against now and has ever since.

In 2010, my predecessor, Dr. Carter, ended the use of cost-plus contracts for production, starting with Lot 4.

In the fall of 2011, I became the Acting Under Secretary. One of my early decisions was to bring Lieutenant General Bogdan in to replace Vice Admiral Venlet.

Lieutenant General Bogdan has proven to be highly competent and professional program executive officer.

In the fall 2011, based on an early operational assessment report from Dr. Gilmore's office, I commissioned an independent review of the technical status of the program focused on the design stability of the program. At that time, the extent of the open design issues and the risk of high concurrency costs for retrofitting aircraft that had already been produced with fixes that were found later led me to seriously consider halting production. Based on several considerations, I made the decision to hold production constant at 30 aircraft per year for the next 2 years, and to assess progress before increasing production at that point.

Under Lieutenant General Bogdan's leadership, the program has made steady progress for the past 4 years. Cost and development have remained within the baseline. Production costs have steadily decreased, beating the independent cost estimate each year. The cost of sustainment has also been reduced by approximately 10 percent since the program was rebaselined.

There have been a few months of schedule slip primarily due to software complexity.

While I do continue to monitor progress monthly and conduct annual program deep-dive reviews, the F–35 is no longer a program that keeps me up at night. There are some design issues that still need to be resolved. The test program is about 90 percent complete, and I do expect additional discovery, but I will be surprised if a major design problem surfaces at this point.

Our task now is to complete the test program, achieve IOC for the Air Force later this year and the Navy in 2018, complete OT&E, and support our many partners and foreign sales customers as they become operational over the next few years.

We also need to move forward with the follow-on development. I appreciate this committee's support for authorizing and funding that important work.

The F–35 is a game-changing, state-of-the-art weapons system. But our potential adversaries are not standing still. Threat advances in areas like integrated air defense systems, air-to-air weapons, and electronic warfare must be continuously countered. We must continuously improve the weapons system to keep pace with emerging threats.

I thank the committee for its support and look forward to your questions.

Chairman MCCAIN. Thank you.

General Bogdan?

STATEMENT OF LIEUTENANT GENERAL CHRISTOPHER C. BOGDAN, USAF, PROGRAM EXECUTIVE OFFICER FOR THE F–35 LIGHTNING II JOINT PROGRAM

General BOGDAN. Thank you, sir. Chairman McCain, Ranking Member Reed, distinguished members of the committee, thank you for the opportunity here today to discuss the F–35 Lightning II program.

My purpose here today is to provide you an honest, balanced assessment of where the program stands today. That means I will tell you the good, the bad, and the ugly about the program, and tell you what my team is doing to reduce costs, improve F–35 performance, and meet our scheduled commitments.

The F–35 Lightning II is of vital importance to the security of the United States. As the program executive officer and program director, I am committed to delivering an affordable, reliable, and sustainable fifth-generation weapons system to our warfighters and those of our international partners and foreign military sales customers.

Overall, the F–35 program is executing well across the entire spectrum of acquisition to include development and design, flight test, production fielding, base standup, maintenance and support, and building a global sustainment enterprise.

The program is at a pivot point. It is now rapidly changing, growing, and accelerating. We will be finishing our development program in late 2017 and begin a transition to a leaner, more efficient follow-on modernization program. We will see production grow from delivering 45 aircraft in 2015 to delivering over 100 airplanes in 2018, and up to 145 by 2020.

Additionally, in the next four years, we will continue the standup of 17 new operating F–35 bases all over the world. We are also accelerating the creation of our heavy maintenance and repair capability and supply chain in the Pacific, European, and North American regions, creating a truly global sustainment capability.

However, the program is not without risks and challenges, as these come with any program of this size and complexity. But I am confident the current risks and issues we face can be resolved, and we will be able to overcome future problems and deliver the F–35's full combat capability.

I have often said that the mark of a good program is not that it has no problems but rather that it discovers problems, implements solutions, improves the weapons systems, and at the same time keeps the program on track. I believe we have been doing that for a number of years now.

Let me highlight a few of our recent accomplishments.

Last year, we began U.S. Air Force and partner pilot training at Luke Air Force Base in Arizona where a blend of U.S. and partner F–35 instructor pilots are helping to train U.S. Air Force and other partner pilots. The Air Force is now receiving F–35As at Hill Air

Force Base in Utah, and training is underway to ready its first combat-coded F–35 squadron to be operational later this year.

Also, the United States Marine Corps is successfully flying and deploying to austere sites for training, and dropping and shooting live weapons with the F–35B today.

In addition, industry committed to and then successfully delivered 45 airplanes last year, including the first aircraft produced in the Italian assembly facility in Cameri, Italy. From a production perspective, we have delivered a total of 176 of our test, operational, and training aircraft to date.

On the cost front, the price of purchasing F–35s continues to decline lot after lot, a trend I believe will continue for many years. I expect the cost of an F–35A with an engine and fee in then-year dollars to be less than $85 million in fiscal year 2019.

As I said before, the program is changing, growing, and accelerating, but it is not without its issues, risks, and challenges. Let me highlight some of these areas and what we are doing about them.

On the technical front, we have a number of risks I would like to mention. At the top of my list are both aircraft software and our maintenance system known as the Autonomic Logistics Information System [ALIS]. We have seen stability issues with our Block 3 software. However, we believe we have identified the root cause of these problems and have tested solutions in the lab and in flight test, and are now completing our flight tests with these solutions.

Our initial indications of this flight testing was positive, and we see software stability improved to two to three times better than what we have seen in the past. By the end of this month, I am encouraged that we will have an enough data to consider this problem an issue closed.

We have also experienced schedule issues with the development of our next version of ALIS, version 2.0.2. I am prepared to discuss this issue as well as topics such as our egress system, U.S. Air Force IOC, initial operational test, and recent U.S. Air Force and U.S. Marine Corps deployments, and the status of our partners and FMS customers during the questions and answers.

In summary, the F–35 program is moving forward, sometimes slower than I would like, but moving forward and making progress nonetheless. We are nearing the completion of development and flight test in 2017. We are ramping up production, standing up new bases, and growing a global sustainment enterprise. We have also stabilized and reduced the major costs on this program.

As with any big, complex program, new discoveries, challenges, and obstacles will occur. The F–35 is still in development, and this is a time when challenges and discoveries are expected. However, we believe the combined government and industry team has the ability to resolve our current issues and any future discoveries.

I intend to continue leading this program with integrity, discipline, transparency, and accountability. It is my intention to complete this program within the resources and time I have been given, and I intend on holding my team and myself accountable for the outcomes on this program.

We never forget that someday your sons and daughters, your grandsons or granddaughters, will take an F–35 into harm's way

to defend our freedom. Delivering them the best possible weapons system is a responsibility I and my team take very seriously.

Thank you again for the opportunity to discuss the program. I look forward to your questions.

[The joint prepared statement of Mr. Kendall and General Bogdan follows:]

JOINT PREPARED STATEMENT BY THE HONORABLE FRANK KENDALL AND LT. GEN. CHRISTOPHER C. BOGDAN

I. INTRODUCTION

Chairman McCain, Ranking Member Reed and distinguished Members of the Committee, thank you for the opportunity to appear before you today to discuss the F–35 Lightning II.

The F–35 Lightning II is the Department of Defense's largest acquisition program, matched by its importance to our Nation's security. The F–35 will form the backbone of U.S. air combat superiority for decades to come, replacing or complementing the legacy tactical fighter fleets of the Air Force, Navy, and Marine Corps with a dominant, multirole, fifth-generation aircraft, capable of projecting U.S. power and deterring potential adversaries. For our International Partners and Foreign Military Sales (FMS) customers who are participating in the program, the F–35 will become a linchpin for future coalition operations and will help to close a crucial capability gap that will enhance the strength of our security alliances. Accordingly, delivering this transformational capability to front-line forces as soon as possible remains a top priority.

Our overall assessment is that the program is making solid progress across the board and shows improvement each day while continuing to manage emerging issues and mitigate programmatic risks. We are confident the F–35 team can overcome these challenges and deliver on our commitments. In this testimony, we will present a detailed update on the progress that has been made over the past year, providing a balanced assessment of the current status of the program, highlighting both the accomplishments and the setbacks, as well as articulating where we believe risks remain.

II. ACCOMPLISHMENTS

The F–35 program is executing well across the entire spectrum of acquisition activities, to include development and design, flight test, production, fielding and base stand-up, sustainment of fielded aircraft, and building a global sustainment enterprise. In February 2016, the F–35 reached 50,000 flight hours, including approximately 26,000 for the F–35A, 18,000 for the F–35B and almost 6,000 hours for the F–35C. We are pleased to report many accomplishments by the F–35 team during the past year. Of note, we have seen declaration of Initial Operational Capability (IOC) for the F–35B by the U.S. Marine Corps (USMC) last summer, providing our combatant commanders with a 5th generation strike fighter capable of operations from expeditionary airstrips and sea-based carriers, the delivery of the first ten F–35A aircraft to Hill Air Force Base (AFB) in Utah in preparation for the U.S. Air Force's (USAF) declaration of IOC later this year, and delivery of Block 3F software to flight test in support of U.S. Navy (USN) F–35C IOC in 2018. The F–35 team remains committed to sustaining and expanding these fielded capabilities.

Accomplishments in flight testing over the past year include:

- Completion of F–35B Block 2B operational assessment aboard the USS *WASP* and successful completion of the second round of sea trials with the F–35C aboard the USS *Dwight D. Eisenhower* (CVN 69).
- Completion of five sea trials with the F–35B and F–35C.
- Steady progression of the developmental test program with a focus on wrapping up testing of the Block 3i software this Spring. This last iteration of Block 3i software will give the F–35A the combat capability required for USAF IOC.
- Completion of F–35A high angle of attack and performance testing and continued flight envelope expansion for all aircraft variants. F–35B and F–35C high angle of attack flight testing will complete by the end of 2016.
- For the F–35A, performance of a series of successful AIM–9X air-to-air missile launches and airborne test firings of its internal GAU–22 internally-mounted 25-millimeter cannon. Air-to-Ground accuracy testing of the GAU–22 is expected to commence later this year and complete in summer 2017.

- Successful completion of the first operational fleet weapons drops for the USMC and USAF, and completion of all Block 3i weapons delivery accuracy events.

III. DEVELOPMENT

Steady progress continues toward completion of the F–35 System Development and Demonstration (SDD) phase in the Fall of 2017. A year ago, the program was nearing completion of Block 2 software development and was closing in on completing all flight testing necessary to field our initial warfighting capability, also known as Block 2B. We are now in the same position for our next increment, Block 3i. We should complete all 3i testing this Spring and convert fielded aircraft with earlier versions of Block 3i to the latest version starting this summer.

The final block of F–35 development program capability, known as Block 3F, provides a fully capable F–35 aircraft and marks the completion of the SDD program. Block 3F Mission Systems software is currently undergoing Developmental Test (DT), and many of the deficiencies discovered in Blocks 2B and 3i software will be corrected in Block 3F. However, since both 2B and 3i testing took longer than originally planned, the program estimates there is a risk to completing Block 3F on time—it is now projected to be about four months late and will be delivered in late Fall of 2017. This delay is an improvement over our projection from one year ago, and it is not expected to impact USN IOC for the F–35C in 2018 or the other U.S. and coalition partners' operational milestones. The stability issues we discovered in both Block 3i and 3F software have been thoroughly analyzed and the root causes of these problems are now known. We have incorporated numerous fixes based on this analysis; and, as of April 13, 2016, we had flown 29 sorties and 75 hours with the new improved software. The results have been promising with both pilots and engineers seeing a marked improvement in stability. The newest version of software has shown 2 to 3 times greater stability than previous versions, and we are confident that this particular set of issues has now been resolved to the Program and Warfighter's satisfaction. We can now proceed with the testing of the final version of software, Block 3F.

Looking beyond the SDD program, the ensuing effort, known as Follow-on Modernization, will be the means to deliver improved capabilities to the weapon system to ensure its relevance against advanced and emerging threats. The program anticipates the Joint Requirements Oversight Council will approve the Follow-on Modernization / Block 4 Capabilities Development Document this summer. Work continues with the U.S. services and International Partners to ensure the Modernization Program will be "right-sized" for affordability and sustainability. We awarded the initial Planning and Systems Engineering contract in June 2015, and execution remains on track to conduct a comprehensive System Requirements Review this Fall. Two additional contract actions are planned in the near term. The first will allow for the decomposition of system level requirements through a rigorous systems engineering effort, and the second will continue that work through Preliminary Design Review planned in Spring 2018 and will support a Defense Acquisition Executive decision point to move forward with the Block 4 development program in mid-2018.

From a cost and programming perspective, the Department and the F–35 Joint Program Office (JPO) are fully committed to complete transparency when it comes to reporting progress on the Follow-on Modernization program. We view the modernization effort as a continuation of the existing F–35 program, one that continues to be the Department's most closely managed acquisition program. The existing oversight mechanisms, management structure, and decision processes are more than adequate to continue to manage the modernization program. We will award a separate modernization contract that tracks full cost, schedule and earned value management reporting metrics. The modernization budget already has separate program elements and budget lines and we are working with the Office of the Director, Cost Assessment and Program Evaluation (CAPE) and Congressional Defense Committees to devise the format and frequency of reporting progress on the modernization effort. We also plan for a CAPE independent cost estimate that assesses the effort required to execute the modernization effort.

F–35A Dual Capable Aircraft (DCA) continues to be aligned with and included in the Block 4 Follow-on Modernization effort. In mid-2015, we conducted a series of test flights to assess the vibration, acoustic, and thermal environments of the F–35A weapons bay with the B61–12 weapon. Nuclear Certification planning efforts have been initiated as part of the Block 4 contracting activity in anticipation of beginning B61–12 integration on the F–35A in 2018.

Commensurately, we have begun to "right size" the DT fleet of aircraft in preparation for Follow-on Modernization. As part of this process, the services and program

office are working together to determine the correct mix of capacity and capabilities to allow us to operate a flight test fleet that is representative of the Warfighter's fleet. This will provide the needed capability at a lower cost, allowing the services to put more resources toward capability enhancements.

Although solid progress is being made—we are now 90 percent complete with all of SDD—F–35 development is not without technical discoveries and deficiencies, which are expected for a system that has not completed development.

On August 27, 2015, the U.S. Services and International Partners restricted pilots weighing less than 136 pounds from operating the F–35 after safe escape tests indicated the potential for increased risk of injury to this pilot population. Currently, no F–35 pilots are impacted by this restriction. The restriction is focused on this population, as lighter pilots are assessed to have lower neck strength and are therefore more susceptible to injury as a result of neck loading observed during testing.

There are three technical solutions that, when in place, will reduce the risk of neck injury to all pilots and will eliminate the restriction to any pilot population. All three of these solutions have now been verified through testing, and will be ready to incorporate into production aircraft and retrofit to delivered aircraft by the end of 2016. These solutions include a head support panel between the parachute risers that prevents neck over-extension; a pilot-selectable weight switch, which adds a very slight delay in the opening of the main parachute, thus reducing opening shock loads; and, a lighter F–35 helmet. This lighter helmet is also expected to field by the end of 2016 in line with the seat time frame. Once these three measures are in place, we can remove the weight restriction and pilots weighing less than 136 pounds will be safely able to fly the F–35. These improvements will make the F–35 ejection seat and escape system the safest we have today, and will also implement an escape system that provides protection for the widest weight and size range of pilots—from 103 pounds to 245 pounds, and from the smallest to largest-sized pilots—of any ejection system ever built.

Another deficiency the Program is resolving involves the Ground Data Security Assembly Receptacle (GDR), which is part of the Off-board Mission Planning system and is used to encrypt and decrypt the mission and maintenance data carried on the Portable Memory Device to and from the airplane by the pilot. In 2015, the program faced significant challenges with the pilot debrief timeline, because the GDR required approximately 1.5 hours to download a 1.5 hour flight—far too long. We have now developed an improved GDR that will decrease the timeline to download mission data. When these units are fielded, the mission download time for a 1.5 hour flight will be reduced to approximately 20 minutes. Qualification and integration tests are now underway. We will deliver the new GDR in the summer of 2016 with the first ten units delivered to Hill AFB in Utah in support of USAF IOC. Further GDR deliveries to backfill other units will begin in the Fall of 2016.

In September 2013, during F–35B full-scale durability testing, we experienced a significant bulkhead crack at 9,056 Equivalent Flight Hours (EFH). The root causes have been established and redesign efforts for the bulkhead is well underway. A laser shock peening process is being developed to address specific locations requiring additional material improvement to meet full life. The qualification of this process is progressing satisfactorily and is expected to be available for both production and retrofit of fielded aircraft by the end of 2017.

The F–35B durability test restarted in February 2015 and progressed to 11,915 EFH by August 2015. At that time, cracking had developed at previously identified short life locations and required repair. That repair work is complete, and testing resumed February 29, 2016. The test completed 12,000 EFH and is currently completing Level 1 inspections. The F–35B durability test is expected to complete its second life of durability testing sometime in the Fall of 2016.

In October 2015, the F–35C test article experienced cracking in the wing front spars at 13,731 EFH. The root cause has been established and the redesign effort for the spars has begun. Standard redesign techniques, such as local material thickening and cold-working are expected to be used to achieve full intended life. This finding does not affect the F–35A or B variant spars because the F–35C spars are designed differently to account for the aircraft's larger wings. In addition, at 13,931 EFH additional cracking was found in the left side of a main fuselage bulkhead. While under investigation a similar, though smaller crack was also found on the right side of the same bulkhead. This new cracking is under investigation and analysis in ongoing. There is no near-term airworthiness concern for fielded or test aircraft due to either case of cracking because these aircraft can fly for approximately 10 years or more before these structural issues require repair. The F–35C is expected to complete its second life of durability testing in late 2016.

The F–35 Program Office is making progress in resolving two technical issues involving the fuel system: fuel tank overpressure at elevated g-loading and fuel tank

inerting for lightning protection. The technical solution for the fuel overpressure has been designed, tested and is in the process of being fielded for the F–35A and F–35B variants. The F–35C design solution is also complete and testing will complete in the Spring of 2016. This will allow all F–35 variants to reach their full structural capability. Additionally, the F–35 team recently qualified the improved fuel tank inerting system, and the operational restriction to avoid lightning in-flight was lifted for the F–35A and F–35B in late 2015. The fuel systems' differences among the three aircraft variants require additional measures to qualify the new inerting system for F–35C. The F–35C will be corrected with a hardware change to commence in the summer of 2016. Implementation of both overpressure and lightning corrective actions will provide full g-envelope and full lightning protection for all three variants prior to SDD completion and is expected to meet all IOC requirements.

IV. COST, SCHEDULE, AND PERFORMANCE METRICS AND PRODUCTION STATUS:

Affordability remains our top priority. We continue to make it clear to the program management team and the F–35 industrial base that the development phase must complete within the time and funding allocated, we must continue to drive cost out of aircraft production, and explore all measures to reduce life-cycle costs. To that end, the program has engaged in a multi-pronged approach to reduce costs across production, operations, and sustainment. The government/industry team is reducing aircraft production costs through "blueprint for affordability" initiatives and reducing F135 engine costs via ongoing engine "war on cost" strategies. These efforts include up-front contractor investment on cost reduction initiatives, mutually agreed upon by the government and contractor team. This arrangement motivates the contractors to accrue savings as quickly as possible in order to recoup their investment, and it benefits the government in realized cost savings at the time of contract award.

The price of F–35s continues to decline steadily with each production Lot. For example, the price (including airframe, engine, and contractor fee) of a Low Rate Initial Production (LRIP) Lot 8 aircraft was approximately 3.6 percent less than an LRIP Lot 7 aircraft, and an LRIP Lot 7 aircraft was 4.2 percent lower than an LRIP Lot 6 aircraft. LRIP Lots 9 and 10 contract negotiations are nearing completion, and LRIP 9 contract award is anticipated in the near future. We plan to award LRIP 10 when the Secretary of the Air Force certifies that F–35As delivered during fiscal year 2018 will be full Block 3F capable. The goal is to reduce the flyaway cost of the USAF F–35A to less than $85 million dollars by 2019, which is anticipated to commensurately decrease the cost to the Marine Corps F–35B and Navy F–35C variants.

Program costs, as reported in the December 2015 Selected Acquisition Report (SAR) reflect improvements in affordability. RDT&E costs remained stable with a slight increase representing a zero sum re-phasing between Service Procurement accounts and RDT&E. The estimate for procuring F–35 aircraft over the life of the program decreased by $7.5 billion (BY12$) and $12.5 billion (TY$). Life cycle Operations and Support (O&S) costs increased by $10.5 billion (TY$), less than 1 percent, due primarily to revised assumptions by the Services that added approximately 1.6 million flight hours and a 6-year extension (from 2064 to 2070) to the life of the program. The changes to these estimating assumptions overshadowed cost reductions in annual sustainment costs and cost per flight hour of 2–4 percent, the result of improved maintainability and sustainability as the weapons system matures, the design stabilizes, and the maintenance of the aircraft becomes more efficient and effective.

The program met its 2015 production goal of delivering 45 aircraft and projects to deliver 53 aircraft in calendar year 2016, with 48 of those aircraft produced in Fort Worth, Texas and another five produced in the Italian Final Assembly and Check Out facility at Cameri, Italy. As of mid-April 2016, a total of 176 aircraft have been delivered to our test, operational and training sites. The delivery schedule for aircraft also continues to improve. LRIP Lot 6 aircraft averaged 68 manufacturing days behind contracted delivery dates, and LRIP Lot 7 aircraft have improved to an average of 30 manufacturing days behind contract dates. We expect to see continued improvement with LRIP Lot 8 deliveries and project future aircraft to be delivered by the contract delivery date by early 2017. We continue to work with both Lockheed Martin and Pratt & Whitney to prepare the program for the production ramp increase projected over the next few years.

The F–35 enterprise is exploring the possibility of entering into a Block Buy Contract (BBC) for LRIP Lots 12–14 (fiscal year 2018–2020). A BBC would achieve significant program cost savings by allowing the contractors to utilize Economic Order Quantity (EOQ) purchases, enabling suppliers to maximize production economies of

scale through batch orders. To substantiate the potential savings of a BBC concept, the F–35 Program Office contracted with RAND Project Air Force to conduct an independent assessment. RAND's assessment, delivered in March 2016, indicated that savings on the order of $2.5 to $3.0 billion can be achieved by providing a total of 4 percent EOQ funding to selected suppliers. The Department of Defense plans to consider beginning the Block Buy in Lot 13 rather than Lot 12. However, we are considering an option to allow the F–35 Partners and FMS customers to begin a BBC in Lot 12, followed by U.S. participation in Lots 13 and 14. This option will still result in significant cost savings although less than the amount stated above. RAND's study has been extended to assess the savings associated with this option, with results due in May 2016.

Overall, we believe the risk of entering into a BBC in Lot 12 (fiscal year 2018) to the F–35 International Partners and FMS customers is low. By the time it is necessary to commit to a Block Buy, we will have completed durability testing for all three variants, reached 98 percent completed of all hardware qualification, completion of the majority of 3F software and weapons delivery testing, and have stable and mature production processes.

Earlier this year, the program reached agreement with Pratt & Whitney on lots 9 and 10 of F135 propulsion systems and awarded lot 9 earlier this month. The F–35A/C propulsion system costs were reduced by 3.4 percent from the previously negotiated LRIP Lot 8 price to the negotiated LRIP Lot 10 price. The F–35B propulsion system costs (including lift systems) were reduced 6.4 percent from the previously negotiated LRIP Lot 8 price to the LRIP Lot 10 price. For calendar year 2015, all F135 production deliveries met contract requirements. However, recurring manufacturing quality issues have created issues with delivered engines. Recent quality escapes on turbine blades and electronic control systems resulted in maintenance activity to remove suspect hardware from the operational fleet prior to delivery. Even with these events, Pratt & Whitney still met its timeline for the Lockheed production line. Pratt & Whitney has taken action to improve quality surveillance within its manufacturing processes and is executing a rigorous quality program with its suppliers. Additionally, the program office manufacturing quality experts have engaged both Lockheed and Pratt & Whitney to ensure quality improvement processes are in place to meet production ramp requirements. We are also continuing to conduct Readiness Reviews throughout the supply base to ensure the production ramp will be achievable and smooth.

V. SUSTAINMENT

During 2015, the program began delivering F–35As to Hill AFB in support of the USAF's first operational F–35 wing. The program has also started F–35B pilot training at Marine Corps Air Station Beaufort in South Carolina. As of mid-April 2016, there are 156 operational (fleet and operational test) and 20 DT F–35s in the inventory operating at eight different sites. Together, the entire fleet has logged more than 50,000 flight hours since our first flight in 2006. F–35A deliveries to Eglin AFB in Florida are complete; and the program continues deliveries to Luke AFB in Arizona, which is the main training base for the USAF and Partners, including Australia's and Norway's first two F–35As. In the next four years, we will add another seventeen operating bases to the F–35 enterprise across all three regions of North America, the Pacific and Europe.

As additional aircraft come off the production line, the program is working to ensure sites across the globe are ready to accept the F–35. Since January 2015, the program has sent out 51 site activation teams supporting detailed planning at 25 different locations around the globe. These sites include stand up of F–35 capability for six of the Partner Nations, all three of the foreign military sales customers, and additional sites for USAF, USMC and USN. Planning commenced in 2015 for base standups in Norway, the Netherlands, Turkey, United Kingdom, Israel, Japan and Korea. The site activation highlight for 2015 was the successful preparation and arrival of the F–35 at Hill AFB, forming the foundation for a projected 2016 USAF IOC.

Aircraft availability rates continue to be a focus area for the program and various program initiatives are now showing a positive trend in this area. A disciplined Reliability & Maintainability program, improved maintenance procedures and manuals, continued improvement in the Autonomic Logistics Information System (ALIS), better forecasting of spares requirements, improved repair turnaround times from suppliers, and incorporation of aircraft design improvements have resulted in gains in mission capability rates and aircraft availability rates. Today, across the fleet, we are seeing 55 to 60 percent availability rates with units performing at 63 percent

mission capability. These reliability and maintainability metrics compare favorably to a year ago when fleet availability was averaging below 50 percent.

Last year the program provided information regarding its efforts toward the establishment of the Global Sustainment posture across Europe, Asia-Pacific, and North America. In 2015, the program made progress in standing up regional Maintenance, Repair, Overhaul, and Upgrade (MRO&U) capabilities for airframes and engines in the European and Pacific regions. These initial MRO&U capabilities will support overseas F–35 airframe and engine heavy-level maintenance for all customers, including the U.S. Services, and will continue to provide the best-value to the enterprise. Italy will provide initial airframe MRO&U capability in the European region in 2018. Turkey will provide engine heavy maintenance in the European region in 2018, with the Netherlands and Norway providing additional capability a few years later. F–35 airframe MRO&U capability in the Pacific region will be provided by Australia in 2018 and then by Japan. Australia will also be providing initial engine heavy maintenance, followed by Japan about five years later.

In 2015 the program also kicked-off initial planning efforts for expansion of component repair into the European and Pacific regions. Efforts began to identify "best value" repair sources in each region for approximately 18 key depot-level repairable items. International Partners and their respective industries will be requested to propose component groupings, which leverage their strongest industrial competencies to deliver optimum repair capability at the best cost to the global sustainment solution.

The program will continue this process in 2016 and 2017 with the Department of Defense assigning to our Partners and FMS customers repair capabilities such as wheels and brakes, electrical and hydraulic systems, maintenance of support equipment, and warehousing for the global supply chain. These same capabilities either currently exist or are being developed at the U.S. Services' continental United States (CONUS) depots in accordance with current U.S. law.

VI. RISK & CHALLENGES

Although improving, the Program is not without risks and challenges. Currently, our most significant technical concerns are the development and integration of mission systems software and the development and improvement of ALIS.

The F–35 aircraft has approximately eight million lines of code, with another 16 million lines of code on the off-board systems. This is an order of magnitude greater than any other aircraft in the world and represents a complex and often frustrating element in the program. Several years ago the program instilled discipline in the way software is developed, lab tested, flight tested, measured and controlled. This has produced much better and more predictable results over the past two years. However, both the fielded Block 3i software and the 3F software in flight test were not as stable as they need to be to support our Warfighters. We have experienced instability in the sensors leading it to shut off and "reboot" in flight. We believe we have identified the root cause of these stability problems to be the timing of software messages from the sensors to the main F–35 fusion computer, and we have tested solutions in the lab environment. As of April 13, 2016, we had flown 29 sorties and 75 hours with the new software containing the stability improvements. Thus far, we have seen an improvement in the software's stability with a meantime between stability problems improving from once every four hours to greater than 10 hours. We are cautiously optimistic that these fixes will resolve the current stability problems, but are waiting to see how the software performs in an operational test environment. We have three Operational Test (OT) jets flying with the new software and expect 50 hours of additional OT testing by April 29th. At that time we will have enough data to consider whether the software stability issue can be closed. If the fixes are successful, we will add them to a new version of 3i software and field that in time for USAF IOC. We will also incorporate the fixes in the 3F software we are developing and flight testing. To ensure we completely understand these issues the program office has also launched an in-depth look at this issue in the form of a software stability "Red Team." This team, made up of a group of experts from the Navy and Air Force, has started in-depth analysis of all reported issues and is working to develop recommendations to ensure the F–35 software is robust and resilient into the future.

The final software version, Block 3F, has the most software risk facing the program for a number of reasons. First, 3F testing started later than planned because we had to spend more time fixing Block 2B and 3i software. Second, 3F has the same stability issues as Block 3i as described above. Third, Block 3F software must receive information from other external air and ground operational sources and fuse this with F–35 information, giving the pilot a more complete and accurate picture

of the battlespace. Additionally, the remaining flight loads, buffet, and weapons delivery accuracy flight testing needs to be accomplished. We estimate there is about four months of risk to the planned schedule, projecting full 3F capability to the Warfighters in the late Fall of 2017.

The next version of ALIS, version 2.0.2, which includes new capabilities to support USAF IOC, also has some schedule risk. This version of ALIS combines the management of F135 engine maintenance within ALIS and tracks all the life-limited parts on each and every F–35 aircraft. The development of these capabilities is proving to be difficult because they require integration with Lockheed Martin's and Pratt & Whitney's Enterprise Resource Planning systems, or the "back end" of ALIS. We anticipate that this latest version of ALIS (2.0.2) is approximately 60 days behind schedule.

We are also working closely with the Joint Operational Test Team to finalize the F–35 fiscal year 2016 Cyber Test Plan. This testing is scheduled to begin this month and will perform end-to-end Vulnerability and Adversarial Testing on ALIS and the F–35 Air Vehicle. Hundreds of penetration and cyber security tests have already been accomplished on the system, enabling us to connect the F–35 systems to the DOD Global Information Grid (DOD and Services networks).

We have also instituted an ALIS initiative aimed at fixing prior deficiencies and rapidly fielding them to the Warfighter. As we continue to develop new capabilities, the Program has set up a parallel effort—known as "Service Packs"—to fix many of the deficiencies the maintainers in the field have brought to our attention. These deficiencies usually result in workarounds and add workload to our maintainers' already demanding responsibilities. Service Packs are developed, tested and fielded on a much quicker timeline than our larger increments of ALIS. We fielded the first Service Pack in January, and feedback from the field has been encouraging. We will continue to rapidly field Service Packs to improve the usability of ALIS for our maintainers, the next of which will be fielded in the next few months.

One final comment concerning risks and issues on the program deals with the recent report issued by the Director of Operational Test and Evaluation (DOT&E). This report is factually accurate and was written entirely based on information that came from the F–35 Program Office—there is no information in the report that was not already known by the Program Office, the U.S. Services, and our Partners. While not highlighted by the DOT&E report, among the 14 issues cited in the report, the F–35 Program fully concurs with nine of them and partially concurs with the other five. The F–35 Program has a dedicated effort underway to resolve or otherwise mitigate them.

VII. DELIVERING COMBAT CAPABILITY

Following the declaration of IOC in June of 2015, the USMC has continued to train and exercise its combat capable F–35B aircraft. At the beginning of December 2015, Marine Fighter Attack Squadron 121 deployed eight F–35Bs to Twenty-nine Palms in California for Exercise Steel Knight. The team executed 32 sorties in support of the combined arms live-fire exercise, taking an important step toward integrating the F–35B into the Marine Corps Combined Arms Team and demonstrating their capability to execute close air support and strike missions from an austere operating site.

The USAF also showed its increasing capabilities with the F–35A, executing a deployment of six Operational Test aircraft from the 31st Test and Evaluation Squadron at Edwards AFB, California to Mountain Home AFB, Idaho. The squadron executed 54 sorties over 12 days of flying as part of a joint training exercise with U.S. Navy Seals, F–15Es, A–10s, and Apache and Blackhawk helicopters, delivering 10 GBU–31 and 20 GBU–12 precision guided inert munitions. This is the first time the F–35A has deployed to and operated from a base with no organic F–35 support or presence.

An F–35 Lightning II Joint Program Office top priority is meeting USAF IOC at Hill AFB, Utah with Block 3i capabilities between August and December 2016. Hill's active-duty 388th Fighter Wing and Reserve 419th Fighter Wing will be the first USAF combat-coded units to fly and maintain the Lightning II. In support of meeting the USAF's IOC date, Hill AFB has already received its initial F–35As and is now training with them, including the first weapons employment from an operational F–35A.

The USN has set August 2018 as its IOC objective date with the F–35C. In support of meeting the USN IOC, sea trials will continue this year and culminate in the third and final DT period afloat. This test is expected to last approximately 21 days and will test and certify the remaining embarked launch and recovery environmental envelopes, including those with various ordnance and fuel load combinations

expected in fleet use. The test will also complete all initial shipboard flight deck and hangar deck supportability procedures and processes, paving the way to Operational Test and Fleet use.

VIII. INTERNATIONAL PARTNER AND FMS PARTICIPANTS

International participation on the program with eight Partners and three FMS customers remains solid. The program has now delivered the first Royal Norwegian Air Force F–35 to Luke AFB expanding the International Partner pilot training currently ongoing there. The first Italian Air Force F–35A was also delivered from the production facility in Cameri, Italy, and then subsequently completed the first F–35 trans-Atlantic flight in February, landing at Naval Air Station, Patuxent River in Maryland. After completion of some program testing, this aircraft will also join the pilot training effort at Luke AFB. F–35A has also conducted aerial refueling flight testing with a Royal Australian Air Force KC–30A tanker and completed aerial refueling flight testing and certification with an Italian Air Force KC–767 tanker. Most recently we completed aerial refueling flight testing with a Dutch KC–10.

In 2015, as part of initial site planning, we commenced standup of maintenance capabilities in Norway, Netherlands, Turkey, United Kingdom, Israel, Japan and Korea. Also, the Japanese Final Assembly and Check Out assembly facility is now complete with both Electronic Mate Assembly Stations tools installed and accepted. Construction and installation activities remain on schedule, and the major components are now being shipped. The first Japanese F–35A is scheduled to rollout of the facility in November 2016.

We anticipate that Denmark will make its final decision on its fighter replacement late Spring 2016. Additionally, although Canada has indicated that it will conduct a new fighter replacement competition, it still remains a full partner in the F–35 program. We continue to provide the Canadian government with the most up-to-date and accurate information to aid them in its future selection process.

The Government Accounting Office (GAO) conducted two focused F–35 reports in 2015—one on the overall program and the other on sustainment. Both reports were completed with the F–35 program's full cooperation and unfettered access to information. The GAO annual F–35 program report had a single recommendation to establish the Follow-on Modernization program as a Major Defense Acquisition Program. DOD non-concurred with the recommendation and contends that the modernization effort is a continuation of the baseline program and that the existing oversight mechanisms, management structure, and decision processes are more than adequate to continue to manage the modernization program. The GAO had four recommendations on ALIS in the sustainment report. DOD concurred with all four recommendations and in many of the areas, the program has already initiated appropriate action.

IX. CONCLUSION

In summary, the F–35 program is making solid progress across all areas including development, flight test, production, maintenance, and stand-up of the global sustainment enterprise. As with any big and complex program, new discoveries, challenges and obstacles will occur. While nearing completion, the F–35 is still in development, and technical challenges are to be expected. However, we believe the combined government-industry team has the ability to resolve current issues and future discoveries. The team's commitment to overcoming these challenges is unwavering and we will maximize the F–35's full capability for the Warfighter.

We will continue executing with integrity, discipline, transparency and accountability, holding ourselves accountable for the outcomes on this program. The team recognizes the responsibility the program has been given to provide the pillar of the U.S. and allied fighter capability with the F–35 for generations to come, a responsibility we take very seriously.

Thank you again for this opportunity to discuss the F–35 program. We look forward to answering any questions you have.

Chairman MCCAIN. Thank you.

Dr. Gilmore?

STATEMENT OF HONORABLE J. MICHAEL GILMORE, Ph.D., DIRECTOR OF OPERATIONAL TEST AND EVALUATION, DEPARTMENT OF DEFENSE

Dr. GILMORE. Mr. Chairman, Senator Reed, members of the committee, I will focus my remarks on readiness for initial operational test and evaluation, and achievement of full combat capability.

My estimate is the program will not be ready to begin operational test and evaluation until mid-calendar year 2018 at the earliest. That is about a 1-year delay relative to the program's objective date and 6 months relative to the threshold date.

There are a number of reasons that that is my assessment. The most complex mission system testing remains, as does verification of fixes to a number of significant problems. In-flight stability of mission systems with the new Technical Refresh 2 processor has been poor, but there is recent indication of significant progress in achieving stability, although those stability issues while they were being fixed led to delays in Block 3F development, which provides full combat capability. Nonetheless, there is good news on the stability front.

Significant ground startup instabilities persist, however. Inadequate fusion of sensor information from sensors on a single aircraft, as well as among a four-ship of aircraft, resulted in cluttered and confusing displays and are still a problem. Four-ships will be frequently used in combat to enable key multi-ship sensor applications that are necessary to deal with the increasingly complex and stressing integrated air defense systems potential adversaries began fielding in the middle of the last decade.

Shortfalls in electronic warfare and electronic attack, geolocation, electronic countermeasures persist. There are shortfalls in the performance of the distributed aperture system, including missile warning and situational awareness; long aerial refueling times up to two to three times those of legacy aircraft; lack of viable moving target capability, which is crucial for successful conduct of close-air support and other missions; lack of display to pilots of failures in critical mission systems components, which is unacceptable in combat; and there are other issues that are classified.

Regarding mission systems, the program has now changed its approach, as has been discussed, from executing parallel schedule-driven software releases to a serial capability-based approach, which does take longer. But that approach has been validated in the recent achievement of improved stability with the TR2 processor. That approach, the new approach, allows the extra time needed to actually fix problems and, as I mentioned, has been validated by the progress recently seen.

Stealth aircraft are not invisible. Mission systems infusion must work in some reasonable sense of that word. They do not have to be perfect, but they have to, in some sense of the word, work to prevail in combat against the modern, very capable, and mobile integrated air defense systems potential adversaries have been fielding since the middle of the last decade. The ability to prevail against these threats is a key rationale for this $400 billion program.

To continue with other reasons that there may be a delay in operational testing, time is needed to complete and certify full

weapons usage throughout the full flight envelope. The most recent test community estimates are October 2017 for F–35A, February 2018 for F–35C, and May 2018 for F–35B. These estimates assume an increase in the rate at which weapons tests are accomplished that may be a challenge to achieve.

As has been mentioned, there are problems that continue with the Autonomic Logistics Information System, or ALIS, which remains immature, requiring problematic and resource-intensive workarounds not acceptable in combat. Under the program's current schedule, the final version of ALIS 3.0, the full capability production version required for IOT&E and full combat capability, will not be released until the first quarter of calendar year 2018. But this schedule could be delayed by the ongoing problems with ALIS version 2.0.2, which attempts to integrate the engine data and incorporate other functionality and fixes.

Concurrency-driven extensive modifications would be required. The early lot aircraft that originally had been bought for IOT&E when IOT&E was planned to begin in 2013. The current unmitigated schedule for accomplishing those modifications, including those for the gun, which is turning out to be very problematic on all variants, extends into the third quarter of 2019. The program is working on a multipronged approach to pull those modifications to the left. That includes taking production aircraft slated for operational use and taking hardware from recently fielded aircraft, and a definitive decision on that approach is needed now.

There are inadequacies that remain in U.S. reprogramming laboratory that are precluding the ability to generate combat-effective mission data files, enabling aircraft to deal with the air defense threats I mentioned. They are only going to worsen in the future.

The current schedule shows USRL hardware upgrades required to handle current threats extend into calendar year 2020. The program can and has delivered mission data files, but they are not optimized or fully tested to handle the current threat because of the hardware and software deficiencies in the USRL.

The program's optimistic schedule for delivery of a validated but probably inadequate MDF to support IOT&E is the first quarter 2018. But this assumes USRL receives the functional lab version of Block 3 this month, which may be problematic.

For all these reasons, delays to IOT&E and full combat capability are likely. I want to remind everyone that IOT&E will constitute the most realistic and stressing test of JSF that will be performed. Therefore, discovery of new, significant deficiencies during IOT&E, as was the case with F–22, is pretty much assured.

Thank you.

[The prepared statement of Dr. Gilmore follows:]

PREPARED STATEMENT BY J. MICHAEL GILMORE

Good afternoon, Mr. Chairman, Ranking Member Reed, my testimony today discusses the status of the F–35 program using my fiscal year 2015 Annual Report as the basis. There are a few updates since the report was released in January 2016, which I will highlight today.

Overall, the program is at a critical time. Although the Marine Corps has declared Initial Operational Capability (IOC) and the Air Force plans to do so later this calendar year (CY), the F–35 system remains immature and provides limited combat capability, with the officially planned start of Initial Operational Test and Evalua-

tion (IOT&E) just over one year away. Over the past year, flight test teams continued to accomplish test flights at the planned rate, and a new version of software capability, Block 3i, was fielded. However, there are still many unresolved significant deficiencies, the program continues to fall behind the planned software block development and testing goals, and sustainment of the fielded aircraft is very burdensome. (The latter is not a surprise, since, as the Program Executive Officer has noted, F–35 remains under development notwithstanding the Services' declarations of IOC.) The program is working to resolve the many issues it confronts, and has recently made some progress addressing problems with the stability of Block 3i mission systems, but my assessment is that the F–35 program will not be ready for IOT&E until CY18 at the soonest. Because aircraft continue to be produced in substantial quantities (all of which will require some level of modifications and retrofits before being used in combat), IOT&E must be conducted as soon as possible to evaluate F–35 combat effectiveness under the most realistic combat conditions that can be obtained. Over 300 aircraft are planned to be built by the end of fiscal year 2017 when IOT&E is currently scheduled to begin.

Test Flights and Software Development. Before operational testing, developmental test teams fly sorties under very specific conditions to examine the system's performance. This year, those teams executed very closely to the planned sortie production rate throughout the year, as has been the case in previous years. It will be important to ensure the government flight test centers and the associated ranges and facilities at Edwards Air Force Base (AFB) and Patuxent River Naval Air Station (NAS) remain sufficiently resourced to overcome the remaining test challenges, which are significant. However, sortie production does not necessarily mean that planned test points were completed successfully, the system under test functioned as designed, the data collected were usable to sign off contract specification compliance, or that the system will actually be effective and suitable in combat.

In fact, the program did not accomplish the amount of test points planned in several flight test venues, and the program continued to add testing via "growth points" while deleting many mission systems test points as no-longer-required. This continues to be the case, as the program recently deleted Block 3F test points and added test points to address Block 3i deficiencies in mission systems performance and stability. Because of a change by the program in defining growth in test points, the amount of this re-defined growth was less during the last year than in previous years.

Regarding mission systems test progress over the past year, the program focused on culminating Block 2B development and testing in order to provide a fleet release enabling the Marine Corps F–35B Joint Strike Fighter (JSF) declaration of IOC, while transitioning development and flight test resources to Block 3i and Block 3F.

The program terminated Block 2B development in May 2015, and the Marine Corps declared IOC in July 2015, despite many known deficiencies and, as expected, with limited combat capability. Block 3i developmental flight testing restarted for the third time in March 2015, after two earlier attempts in May and September 2014. As mentioned in my annual report, Block 3i began with re-hosting the immature Block 2B software and capabilities into new avionics processors. Although the program originally intended that Block 3i would not introduce new capabilities and would not inherit technical problems from earlier blocks, both of these things occurred. The combination of re-hosted immature software and new processors resulted in avionics stability problems that were significantly worse than Block 2B. Despite the problems with avionics stability, sensor fusion, and other inherited issues from Block 2B, the program terminated Block 3i developmental flight testing in October 2015, and released Block 3i software to the fielded units. This decision was made, despite the unresolved Block 3i deficiencies, in an attempt to meet the program's unrealistic schedule for completing development and flight testing of Block 3F mission systems.

The Air Force insisted on fixes for five of the most severe deficiencies inherited from Block 2B as a prerequisite to use the final Block 3i capability in the Air Force IOC aircraft; Air Force IOC is currently planned for August 2016 (objective) through December 2016 (threshold). However, as the program attempted to concurrently develop and test Block 3i and Block 3F software, the latter of which began flight testing in March 2015, the immaturity and instability of the Block 3i mission systems software continued to manifest problems in flight testing. In February 2016, when the latest version of Block 3F software—version 3FR5—was delivered to flight test, it was so unstable that productive flight testing could not be accomplished. Consequently, the program elected to reload a previous version of Block 3F software—version 3FR4—on the mission systems flight test aircraft, to allow limited testing to proceed. The program then converted its developmental labs back to the Block 3i configuration in another attempt to address key unresolved software deficiencies,

including the avionics instabilities troubling both Block 3i and Block 3F. This decision by the program to return to the Block 3i configuration and address the poor mission systems performance should be commended. It has caused some near-term delays, but it is a necessary step to ensure the Air Force has adequate Block 3i software for IOC and that the additional full set of combat capabilities planned in Block 3F can be effectively tested with a stable baseline of software and eventually fielded to operational units. The program recently loaded all the mission systems test aircraft with a new build of Block 3i software—version 3iR6.21 — which started flight testing on March 25. The program is in the process of completing Block 3iR6.21 flight testing, which includes 4-ship test missions, to evaluate performance prior to providing this software to the fielded units. The avionics stability of Block 3iR6.21 during these recent test missions appears to have improved compared to previous versions, however incidences of start-up and in-flight instability were still observed. Although analyses of the test data are still on-going, test reports indicate that inflight stability has potentially improved to be comparable with the fielded version of Block 2B while the significant initial startup problems continue to be a challenge. During the first 30 flights with Block 3iR6.21, which accumulated 75.6 hours of flight time, no less than 27 power cycles were required to get all systems functioning between initial startup and takeoff. These power cycles varied in degree—from "cold iron" resets, where the aircraft had to be shut down and then restarted, to component or battery power recycling. The extent to which the initial startup sequence has improved—or not—compared to earlier versions of Block 3i software is not known, as the program does not track startup events in the same manner as flight instability events. The status of the other "must fix" deficiencies is unknown at the time of this testimony.

Delivering and testing the numerous new and advanced capabilities planned to be in Block 3F mission systems, which are specified in the program's Operational Requirements Document (ORD), presents significant challenges for remaining development and flight test. Before the program's decision to pause Block 3F developmental flight testing and rework Block 3i software, test progress was limited as flight testing had only accomplished approximately 20 percent of the Block 3F baseline test points by the end of March 2016. This is because many of the test points, including the more complex weapons delivery accuracy events, could not be flown until stable, functioning Block 3F software was available. While the new Block 3iR6.21 software was in flight testing, the program finished developing and testing an updated version of Block 3FR5 in the lab, released it to the test centers, and started loading it on the mission systems aircraft to resume Block 3F flight testing in mid-April. Because of the reworking of Block 3i software and the added capability being incorporated in the remaining Block 3F software, it is incorrect to assume that the difficult testing is behind the program. In fact, the most stressing missions systems testing remains to be completed, since the final Block 3F capabilities are both complex and important to the F–35's viability. A relatively recent example of the problems with an earlier version of Block 3F software was an attempted four-ship Electronic Warfare "Super Scenario" mission that resulted in only two aircraft arriving at the range because the other two aircraft ground aborted due to avionics stability problems during startup. Also, when the aircraft operated in a dense and realistic electromagnetic environment, the current avionics problems caused poor detection and fusion performance, which is exacerbated in multi-ship F–35 formations. Due to the large amount of difficult flight testing remaining, it is likely there will be discoveries of additional significant deficiencies that will need to be rectified before IOT&E.

United States Reprogramming Laboratory (USRL). Significant, correctable deficiencies exist in the U.S. Reprogramming Laboratory (USRL) that will preclude development and adequate testing of effective mission data loads for Block 3F. Despite a $45 million budget provided to the Program Office in fiscal year 2013, the required equipment was not ordered in time and the USRL is still not configured properly to build and optimize Block 3F Mission Data Files (MDFs). The program still has not designed, contracted for, and ordered all of the required equipment—a process that will take at least two years for some of the complex equipment—after which significant time for installation and check-out will be required. The estimate of earliest completion, with the required signal generators and other upgrades to properly test Block 3F mission data loads, is late 2019, which is after the planned IOT&E of Block 3F. As I explain in my annual report, the corrections to the USRL are needed to provide the F–35 with the ability to succeed against the modern threats that are the key rationale for pursuing this $400 llion program. If the situation with the USRL is not rectified, U.S. F–35 forces will be at substantial risk of failure if used in combat against these threats. Further, I note that the laboratory being built to provide MDFs to the partner nations will be more capable than the

USRL is when we are preparing for IOT&E. Therefore, the full set of required upgrades for the USRL should be pursued immediately, without further delay.

Cybersecurity testing. The limited and incomplete F–35 cybersecurity testing accomplished to date has nonetheless revealed deficiencies that cannot be ignored. Multiple tests are scheduled for spring 2016 and some are on-going at this time; however, the JSF Program Office (JPO) and contractor are still reluctant to allow testing of the actual, operational Autonomic Logistics Operating Unit (ALOU) including its many connections, fearing the testing might disrupt its operations. Even though the program is providing alternate systems for ALOU testing in the near term, which is better than foregoing all testing, it must allow full, end-to-end, cooperative and adversarial cyber tests on every level and component of the operational Autonomic Logistics Information System (ALIS). The program must also designate an aircraft and provide the authority to test it, as soon as possible, a process the Program Office has been hesitant to do to date. Cybersecurity testing on the next increment of ALIS—version 2.0.2—is planned for this fall, but may need to be delayed because the program has not been able to resolve some key deficiencies and complete content development and fielding as scheduled.

IOT&E readiness and adequacy. IOT&E will be the first rigorous and operationally representative evaluation of the combat capability of the F–35. Unlike previous developmental testing, IOT&E will examine the completed, fully operational aircraft to ensure it is capable of prevailing in combat against realistic threats. However, the slow rate of maturation of required combat capabilities renders the current schedule to complete development and enter IOT&E by August 2017 unrealistic. Essential systems are not becoming stable and viable enough quickly enough to successfully begin testing at that time. Based on the historical performance of the program and the large amount of testing that remains, my estimate for completion of developmental flight test is no earlier than January 2018. For these reasons, the test organizations' capacity should be maintained at current levels, and not reduced in a counter-productive effort to meet unrealistic budget targets. Several other significant obstacles remain to be overcome before IOT&E can begin, including the following:

- **Weapons integration.** A significant amount of weapons integration developmental testing remains in order to integrate and qualify for operational use of the full suite of Block 3F weapons, including the gun. Since my annual report, nothing has changed my estimate that the program must complete weapons employment test events at a pace three times faster than it has previously been able to do. In fact, most mission systems Weapons Delivery Accuracy (WDA) testing has been on hold for months while awaiting a version of Block 3F with the required capabilities and maturity to complete these important and difficult tests. Eliminating or failing to execute some of the remaining planned developmental WDA test events will only result in deferring them to be done later by the operational test squadrons, which will likely delay identification and correction of significant new discoveries and, therefore, increase the risk of delays to IOT&E. The developmental WDA test events are critical in preparing for IOT&E and the Block 3F weapons events are much more complex than previous testing for Block 2B and Block 3i. For example, critical air-to-air and air-to-ground gun accuracy testing still has not occurred because test aircraft have not received the required gun modifications, which are expected in late summer 2016. Whether the F–35, the first modern fighter without a heads-up display, can accurately employ the gun in realistic air-to-air and air-to-ground situations, with the Generation III Helmet Mounted Display System, remains to be seen until this testing can be conducted.
- **Modification of aircraft.** One of numerous penalties associated with highly-concurrent F–35 development and production is that all the early operational aircraft now need many significant, time-consuming, and costly modifications. The 18 U.S. aircraft (6 each of F–35A/B/C) required for IOT&E need to be representative of the configuration of the weapons system that will be bought at full production rates, which is Lot 9 or Lot 10 and later; recall that the operational test aircraft were purchased in early production lots (Lot 3 through 5), when the program planned IOT&E to occur in 2013. The program and the Services need to decide whether to pursue all of the modifications needed to those early-lot aircraft prior to IOT&E, or to equip later production aircraft, requiring few or no modifications, with the necessary instrumentation for IOT&E. Other than continued new discoveries of structural deficiencies which may cause further modifications and delays, nothing substantive has occurred since my annual report to change my estimate that if the former course is pursued, the aircraft designated for IOT&E will not be ready before April 2019. This is despite ongoing efforts by the program to accelerate the modification schedule. An ex-

ample of a recent discovery of a structural deficiency is overloads that are occurring while carrying external AIM–9X missiles that may require a structural modification to the wings of some F–35 variants. The program is also pursuing other options for mitigating some of the other modification delays, including taking some of the new Block 3i processor sets from the production line to modify some of the IOT&E aircraft. However, the program apparently does not have enough new processor sets to provide even two sets without significantly affecting the production line and delaying aircraft deliveries. This situation is indicative of poor management of the production and modification plans since the requirement for modifying the operational test aircraft has been known for many years. The program and Services are also considering swapping new Block 3i processors from other delivered aircraft with the operational test aircraft that are currently configured with Block 2B hardware. The primary problem with staying on the course of completing modifications of the older aircraft is that the production line and the depots—where earlier lot aircraft are being modified—compete for the same materiel. Of course, this issue affects not only the IOT&E aircraft, but all of the aircraft produced before at least Lot 9 as well. Also, since the program and Services still have not agreed on a plan for modifications, it is still not clear if a schedule with the required modifications, including the gun and follow-up radar signature testing, is even executable prior to IOT&E due to the demand on available parts and depot capacity. A decision is needed now on the approach to be taken, so I have asked the program to brief me on their plan to either complete the required modifications or provide instrumented production-representative operational test aircraft prior to IOT&E by June 2016.

- **Mission data.** I already addressed earlier in my statement the problems with the USRL with respect to the need for upgrades in order to be able to produce mission data loads for Block 3F IOT&E. Again, this is a significant problem for the program, and the processes involved in completing the Block 3F laboratory upgrades need to be accelerated, or IOT&E could be delayed well into 2019, with the combat capability of the F–35 remaining deficient. Besides programming the mission data loads, the laboratory is also used as a test venue for optimizing the performance of scan schedules within the data loads. These schedules control the time-sharing of the radar and the electronic support systems to ensure threat signals are detected, geo-located, and correctly identified for battlespace awareness. Such testing takes time in the laboratory and should be completed prior to, and refined after, testing on the open-air ranges. Failure to properly develop, test and optimize these data loads could adversely impact F–35 mission capability during IOT&E or, worse yet, in combat.
- **Sustainment.** In my annual report I provided details on operational suitability. I highlight here, with respect to IOT&E readiness, that if the program is only able to achieve and sustain its goal of 60 percent aircraft availability, the length of IOT&E will increase significantly because a combat-ready availability of 80 percent is planned and needed to efficiently accomplish the open-air mission trials with the number of aircraft planned for IOT&E. Improvements in reliability and maintainability, along with significant improvements to the ALIS, are all needed. The program has worked and achieved better performance in these areas over the past two years, but progress is still too slow if the program is to be ready for IOT&E in less than two years. Of course, this is not only an issue for IOT&E execution, but also for the fielded operational units.
- **Operator preparedness.** In addition to having production representative aircraft, effective mission data, and improved sustainment, the units that will execute the operational test trials need viable tactics and enough time to become proficient by training to them. For example, the pilots will need time to adapt to and train with the new lightweight Generation III Helmet Mounted Display System that will begin testing later this year. The operational test team has always planned for this training to occur; however, the program continues to believe that this can be done concurrently with development. Concurrent development and training for test has been tried in other programs, and is fraught with difficulty and failure.
- **Test range improvements.** I have been working within the Office of the Secretary of Defense and with the Service staffs for the past five years to improve the test venues for operational testing of F–35 and other platforms, in particular the open-air test resources. These efforts have resulted in putting improvements on track for F–35 IOT&E to be able to include already fielded advanced threats that previously were not going to be available for testing and training. However, resistance and bureaucratic delays to adequately integrating these assets have made progress difficult, despite the decision having been

made by the Secretary of Defense to ensure a full and complete test capability that is no less than that available with older threat systems. I will continue to work to bring the needed level of integration to fruition, and appreciate the support provided so far.

- **IOT&E plans.** IOT&E will include trials in various mission areas, specifically Close Air Support (CAS), Surface Attack, Suppression/Destruction of Enemy Air Defenses (SEAD/DEAD), Air Warfare (both offensive and defensive), and Aerial Reconnaissance. The IOT&E will also include tests that compare the ability of the F–35 to accomplish CAS, Combat Search and Rescue and related missions—such as Forward Air Controller (Airborne)—with the A–10, plus Suppression of Enemy Air Defenses (SEAD)/Destruction of Enemy Air Defenses (DEAD) missions with that of the F–16, and Surface Attack missions with that of the F/A–18. These comparison test trials are essential to understanding the new capabilities expected from the F–35 program, relative to the legacy systems it is designed to replace. The trials will be designed to answer the question, "Is the new system as good as or better at accomplishing the mission than the legacy system under the same conditions and in the same environment?" Comparison testing is not new with the JSF. Of note, the F–22 completed comparison testing with the F–15 during its IOT&E. Typically, many variables are present during operational testing that cannot be controlled, especially in force-on-force exercises. Areas where commonality in the variables can be sought among trials to enable valid comparisons include: the type of mission; the size, organization, and capability of the enemy force; the terrain (or environment) where the test is conducted; the size, organization, and capability of the supporting blue forces; and time available to accomplish the mission. These comparison test trials will be designed as "matched pairs" where the F–35 aircraft will fly the mission trial and then the comparison aircraft will fly the same mission trial, under the same operational conditions, with pilots making best use of the differing capabilities and tactics for employing each aircraft.

Block 2B Capabilities Fielded. As mentioned in my annual report, if used in combat, the Block 2B F–35 will need support from command and control elements to avoid threats, assist in target acquisition, and control weapon employment for the limited weapons carriage available (i.e., two bombs and two air-to-air missiles). Block 2B deficiencies in fusion, electronic warfare, and weapons employment result in ambiguous threat displays, limited ability to respond to threats, and a requirement for off-board sources to provide accurate coordinates for precision attack. Since Block 2B F–35 aircraft are limited to two air-to-air missiles, they will require other support if operations are contested by enemy fighter aircraft. The program deferred deficiencies and weapons delivery accuracy test events from Block 2B to Block 3i and Block 3F, a necessary move in order to transition the testing enterprise to support Block 3i flight testing and Block 3F development, both of which began later than planned in the program's integrated master schedule. The program fielded new software for the ALIS during 2015. These versions included new functions, improved interfaces, and fixes for some of the deficiencies in the earlier ALIS versions. The program also fielded a new version of the Standard Operating Unit (SOU) which is more modular and easier to deploy. However, many critical deficiencies remain which require maintenance personnel to use workarounds to address the unresolved problems. For example, transferring aircraft data between SOUs, which is needed to support deployments, does not function seamlessly within ALIS—as it was designed—but often requires manual updating or corrections to data files after a transfer has occurred. The program's failure to integrate propulsion data into ALIS, a feature which was originally planned to be included in version 1.0.3 but is now scheduled for a two-phased release in ALIS 2.0.2 and ALIS 3.0, causes field units to rely heavily on contractor support and maintenance applications entirely separate from ALIS to complete post flight maintenance actions. This process adds time to the maintenance timeline for preparing aircraft for subsequent flights. Other ALIS functions, such as customer support, have failed to improve as planned. Supply functions that should be autonomic, such as identifying where to send failed parts for repair and routing replacement parts to operating units, are manual and labor intensive, contributing to supply delays. Training programs for ALIS are immature and require maintenance personnel to learn ALIS processes in the fielded locations. In addition, the process for creating and receiving action requests, needed for resolving maintenance issues when technical data are insufficient or not clear, is lengthy and burdensome. Lack of standardization of supply procedures across the F–35 enterprise also impacts aircraft availability. For example, prioritization of requisitions that are not designated as "most critical" has led to lower priority customers receiving needed spare parts first and has resulted in the low levels of F–35B engine and module sparing currently available. The Marine Corps has found that the Level of

Repair Analysis (LORA) study conducted by the Program Office has not led to a path forward to achieve repair capabilities at the unit or intermediate levels that would support expeditionary warfare. They have also found that program guidance is overly restrictive in designating when to make repairs to the outer mold line and air vehicle structure based on damage limits and tolerances. In general, these repairs are done at the depot level, but small repairs can be done at the unit level, although the guidance on how to do so is lacking. Instead, unit maintenance personnel must generate action requests for assistance or clarification, a process which slows down the necessary repair actions.

Marine Corps units have noted that their aircraft have a range of configurations as they are from different production lots and each has undergone some level of required modification. This increases the variability in which spare parts are acceptable on each aircraft. Accurately tracking aircraft configurations is manually intensive and is a potential safety issue since ALIS parts management functions may allow de-modification of aircraft by permitting installation of parts that are no longer acceptable after an aircraft has completed modifications.

The Marine Corps conducted a deployment demonstration to the USS *WASP* in May 2015, which provided lessons learned and highlighted limitations for conducting ship-borne operations. The Marines also conducted a deployment demonstration to the Strategic Expeditionary Landing Field near Marine Corps Air Station (MCAS) Twentynine Palms, California, in December 2015. Both deployments required extensive time to transfer data to the deployed ALIS and ensure files were formatted correctly to support operations. In addition, low aircraft availability rates resulted in less than planned sortie generation rates.

The Air Force also conducted deployment demonstrations—one as a "cross-ramp" deployment of three F–35A aircraft across the ramp at Edwards AFB, California, in April and May 2015 and another with six F–35A aircraft to Mountain Home AFB, Idaho, in February 2016. Like the Marine Corps demonstrations, the cross-ramp deployment required extensive time to get ALIS set up and data files transferred from the operational unit. ALIS set up and data transfer during the Mountain Home deployment was more efficient than in other demonstration, being completed within four hours for each of the six aircraft. The Air Force attempted two alert launch procedures during the Mountain Home deployment, where multiple F–35A aircraft were preflighted and prepared for a rapid launch, but only one of the six aircraft was able to complete the alert launch sequence and successfully takeoff. Problems during start-up that required system or aircraft shut-downs and restarts –a symptom of immature systems and software—prevented the other alert launches from being completed.

There are several issues affecting the F–35's CAS capabilities, as mentioned in my annual report. Both the Air Force, with the F–35A, and the Marine Corps, with the F–35B, have flown simulated CAS missions during training or in support of training exercises, with the aircraft in the Block 2B configuration. These training missions have shown that the Block 2B aircraft will need to make substantial use of voice communications to receive target information and clearance to conduct an attack. This is because of the combined effects of digital communications deficiencies, lack of infrared pointer capability, limited ability to detect infrared pointer indications by a controller (which may be improved in the Generation III Helmet Mounted Display System), and inability to confirm coordinates loaded to GPS-aided weapons. Many pilots consider the Electro-Optical Targeting System (EOTS) on the F–35 to be inferior to those currently on legacy systems, in terms of providing the pilot with an ability to discern target features and identify targets at tactical ranges, along with maintaining target identification and laser designation throughout the attack. Environmental effects, such as high humidity, often forced pilots to fly closer to the target than desired in order to discern target features and then engage for weapon employment, much closer than needed with legacy systems, potentially exposing them to threats around the target area or requiring delays to regain adequate spacing to set up an attack. When F–35 aircraft are employed at night in combat, pilots with the currently-fielded Generation II helmet will have no night vision capability from the helmet, due to the restriction on using the current limited night vision camera, which is planned to be subsequently upgraded after aircraft are retrofitted with Block 3i and pilots are equipped with the Generation III helmet, which is still in development and testing. In general, using Block 2B F–35 aircraft, pilots would operate much like early fourth generation aircraft using cockpit panel displays, with the Distributed Aperture System providing limited situational awareness of the horizon, and heads-up display symbology produced on the helmet.

Fuel and weapons limitations also affect F–35 CAS performance. For example, a combat-loaded F–35B, assuming a 250-nautical mile ingress to a CAS area contact point, would have only approximately 25—40 minutes to coordinate with the con-

troller, assess the tactical situation and execute an attack using its two air-to-surface weapons before needing to depart for fuel. By comparison, an Air Force A–10 would have approximately one hour (without external tanks) and one and one half hours (with external tanks) of time in the CAS area under the same conditions, but would be able to autonomously acquire and identify targets, while using datalink to receive and/or pass target and situational awareness information. Also, an A–10 would be able to employ at least four air-to-surface weapons, including a mixed load of ordnance and its internal gun, which provides flexibility in the CAS role. Although F–35 loiter time can be extended by air refueling, operational planners would have to provide sufficient tankers to make this happen, similar to current contingency operations. Recent exercises involving the use of F–35A and F–35B aircraft in limited CAS mission environments have shown that the fuel burn rate with internal weapons (two bombs and two air-to-air missiles) is 10 to 20 percent higher than the F–16, depending on variant, and about 50 to 70 percent higher than the A–10. This creates a burden on the air refueling resources if used to increase F–35 time on station. With additional external weapons, the fuel burn rate would be even higher due to the additional weight and drag. Also, the recent exercises were flown from medium altitudes, where fuel burn rates are less than at lower altitudes or during climbs back to altitude. Gun employment, which will be available with Block 3F aircraft and needed for the CAS mission environments, will likely increase fuel burn rates as the F–35 would accomplish gun strafing maneuvers at lower altitudes and then climb back to higher altitudes for subsequent CAS attacks. Of course, the F–35 is designed to do more missions than CAS, which is the primary mission for which the A–10 was designed. Also, the F–35 is designed to do these missions in a high-threat area.

F–35 development is still not complete, but if the capabilities stated in the ORD are realized, Block 3F aircraft will have the ability to carry additional weapons externally, for an increased payload, as well as a gun. For example, a Block 3F F–35A aircraft could carry six Guided Bomb Unit (GBU)-12 laser-guided bombs (vice two in Block 2B) along with four air-to-air missiles (two Air Intercept Missile (AIM)-120C and two AIM–9X). The gun capabilities of the F–35 and A–10 are significantly different. The F–35 has a lightweight, 25-millimeter cannon, internally mounted on the F–35A with 182 rounds, and in an external pod with 220 rounds for the F–35B and F–35C, while the A–10 has a 30-millimeter cannon with 1,150 rounds. Even though the A–10 gun has a higher rate of fire, the A–10 gun can fire for over 17 seconds versus approximately 4 seconds for the F–35, providing the capability for many more gun attacks. Also, while both guns have a similar muzzle velocity, the rounds fired by the A–10 are twice as heavy, providing twice the impact energy on the target. The F–35's fusion of information from onboard sensors and data from off-board sources (i.e., F–35 aircraft in formation via the Multi-function Advanced Data Link (MADL) and other aircraft via Link 16), along with all-weather ground-moving target and synthetic aperture radar capability, are planned to be more capable in Block 3F and should provide better battlespace awareness than that being fielded with Block 2B and better capability in these aspects than an A–10. The extent that these capabilities improve combat capability over legacy systems will be evaluated during IOT&E.

Mission planning time and the debriefing times for the F–35 with the current version of ALIS—which must account for the long download process for cockpit video—are much longer than those of legacy platforms and will affect operations when the F–35 unit is a member of composite air and surface forces, since planning timelines will have to be adjusted. The program plans to field an improved Ground Data Receptacle—which downloads maintenance and flight data files, including the cockpit video for mission debrief—later this year. Early end-to-end testing shows that transfer times have been cut in half, although the Program Office is working with the contractor to correct software deficiencies that are expected to improve transfer times by a factor of five—from the current times—once completed.

Software—Block 3. As I explained above, Block 3i was intended to be a simple re-hosting of Block 2B mission systems software on new hardware and processors. However, Block 3i content also includes attempted fixes for five significant functional deficiencies related to mission systems identified by the Air Force as necessary for its IOC declaration. Four additional discoveries in Block 3i have since been identified as deficiencies in need of fixes. The final version of Block 2B, version 2BS5.2, had 32.5 hours between stability events during flight testing, versus only 4.3 hours for Block 3iR6. Because Block 3i is the basis for the final new and challenging Block 3F capabilities, the program has rightly determined to focus on Block 3i problems in lieu of further Block 3F development. The program is currently flight testing another version of Block 3i software—version 3iR6.21—on its mission systems test aircraft at the Edwards test center. The initial test sorties with Block

3iR6.21 show improved stability in flight, with indications that the mean time between stability events is again comparable to the fielded version of Block 2B; but, as mentioned earlier, initial start-up continues to be challenging. Moreover, the estimates of mean time between stability events provided above are contractor-reported from developmental testing and almost certainly do not count all the events operational pilots would consider significant in combat. The status of the other "must fix" deficiencies is unknown at the time of this testimony. The Block 3i software instabilities, unresolved deficiencies, lab delays, and the potential for additional discoveries are adversely affecting Block 3i tactics development and the IOC Readiness Assessment, currently underway at Nellis AFB, and are likely to affect Air Force IOC. However, some of the Nellis aircraft have now loaded 3iR6.21 and they are also seeing improved avionics stability in flight. Nevertheless, the program continues to deliver Block 3i aircraft configured with the available software to fielded units and will continue to do so into next year.

Success of Block 3F mission systems depends on the program resolving the problems with Block 3i. The stability and functionality problems in the initial versions of Block 3F, including those inherited from Block 3i and problems caused by new Block 3F capabilities, were so significant that the program could not continue flight test. As a result, the program recently announced a shift to capability-based software releases, rather than schedule-driven and overlapping releases. While this may cause further short-term delays to the program, I agree with the program's decision to shift to a serial process of testing and fixing software in the lab before releasing the next software version, and the recent improvements observed in Block 3i stability validate this serial approach. The program recently released an updated version of Block 3FR5 software to flight test in April and then Block 3FR6 later this summer. If the fixes to stability programmed into the latest Block 3i software continue to suppress the need for avionics resets in flight, mission systems testing and weapons releases can potentially resume in earnest and the test point completion rate will increase, which is essential given the significant amount of testing that remains.

The program continues to carry a heavy load of technical debt in open and unresolved deficiencies. As of the end of March 2016, the program had 1,165 open, documented deficiencies, 151 of which were Category 1, defined as deficiencies which may cause death, severe injury, or severe illness; may cause loss of or major damage to a weapon system; critically restricts the combat readiness capabilities of the using organization; or result in a production line stoppage. Of the 151 Category 1 deficiencies, 128 were associated with the air vehicle and the remaining 23 were associated with the ALIS or support equipment. Furthermore, 95 of the 151 open Category 1 deficiencies were categorized as "high severity" by the program or Services. The Program Office, in cooperation with representatives from the Services, developmental test and operational test organizations, recently led a detailed review of the open deficiencies. This effort, which I applaud, assessed the effect of each deficiency with respect to both combat capability and IOT&E. The resulting list of critical deficiencies should be the top priority fixes for the program prior to finalizing Block 3F and conducting IOT&E.

Mission Data. The problems in the USRL described earlier will not only adversely affect Block 3F combat capability; they are crippling the ability to produce effective mission data loads for today's fielded aircraft. The current tools and software in the lab are very difficult to work with, resulting in a lengthy, inefficient process to produce and test the mission data. Along with the decision to delay moving the lab equipment from the contractor facilities in Fort Worth, Texas, these inefficiencies created sufficient schedule pressure that the program and the Marine Corps directed the lab to truncate the planned testing of the Block 2B mission data so that an immature version could be fielded in mid-2015 to "support" Marine Corps IOC. The lab provided a Block 2B mission data load, but the risks of operating with these mission data are not understood, and will not be characterized until the full set of planned testing, including operational test flights with the mission data, are conducted later this year. Because the hardware in aircraft equipped with Block 3i cannot operate with the Block 2B mission data, Block 3i mission data must be developed and tested independently of, but concurrently with, the mission data for Block 2B. This creates an additional significant strain on the lab, which is already burdened with inefficient reprogramming tools. Block 3i mission data will likely incur the same fate as Block 2B mission data, as inevitable schedule pressure to field immature mission data will drive product delivery despite incomplete optimization and testing. In any case, the risks in combat associated with operating with these early mission data versions will remain unknown until the planned lab and flight testing are complete.

Escape System. The F–35's pilot escape system is immature; it requires modifications and additional testing if the Services are to be reasonably confident the system is safe for their intended pilot populations. The failures during sled tests last summer simulating controlled, low-speed ejections caused the program and Services to restrict pilots below 136 pounds bodyweight from flying the aircraft. Also, the risk to pilots weighing up to 165 pounds, while lower than the risk to lightweight pilots, is still considered "serious" by the program. Last year the program assessed the risk for this 136 to 165 pound weight class, which accounts for approximately 27 percent of the pilot population. The program assessed the probability of death during an ejection in these conditions to be 23 percent and the probability of some level of injury resulting from neck extension to be 100 percent. However, the program and the Services decided to accept that risk and not restrict pilots in this weight category from flying. Subsequently, the program conducted "proof of concept" tests last fall for modifications to the escape system including a "lightweight pilot" switch on the seat and a fabric head support panel between the parachute risers behind the pilot's head, intended to restrict the severe backward neck extension. The tests apparently showed that the lightweight pilot switch and head support panel prevented a neck load exceedance after parachute deployment and opening shock. However, these changes do not prevent the high loads on the pilot's neck earlier in the ejection sequence due to the rocket firing and wind blast. Full testing of these fixes using the new Generation III Light helmet and full range of mannequin weights across different airspeeds is expected to extend through this summer with flight clearance this fall and modification kits in 2017. The first of these tests with all the proposed fixes was recently completed on March 31st using a 103-pound manikin ejected from a rocket sled at 150 knots while wearing a Gen III Light helmet. The JPO assessed this test to be a success and therefore plans to continue the testing through this summer. Even if these fixes are successful, additional testing and analyses are also needed to determine the risk of pilots being harmed by pieces of the transparency from the canopy removal system during ejections (the canopy must be explosively shattered during ejection) in other than stable conditions (such as after battle damage or if out-of-control), referred to as "off nominal" conditions.

Structural testing. Major findings are continuing in the durability test articles, particularly in the titanium bulkhead in the F–35C test article. Significant limitations to the life of the fielded F–35C aircraft can only be addressed with intrusive structural modifications prior to the expected full service life, and show again the high cost of concurrent production and development. In the past year, discoveries of unpredicted cracks continued to occur, and in some cases required pauses in testing to determine root causes and fixes. This occurred in all three variants. Currently, only the F–35A structural test article is being tested; it recently started the third lifetime test phase, or the third series of 8,000 equivalent flight hours of testing on March 11, 2016. The F–35B test article is undergoing inspections at the midpoint of its second lifetime of testing. The F–35C test article restarted testing in mid-February but stopped three days later when strain gauges indicated cracking in a titanium bulkhead; it is expected to restart in May.

ALIS. The program has developed a new version of the ALIS hardware, termed Standard Operating Unit version 2 (SOU v2), which possesses all of the functional capabilities included in the original version—SOU v1—but in a modularized, more deployable form. As I described earlier in my statement, in recent months, both the F–35A and F–35B have conducted deployment demonstrations in an effort to learn how to forward deploy with, and conduct flying operations using, the SOU v2. The Marine Corps and Air Force needed several days to successfully establish a new network in an austere expeditionary environment or to integrate ALIS into an existing network at a non-F–35 military installation before ALIS was able to support flying operations. Although the hardware for the SOU v2 was much more manageable to move and set up, the processes for connecting to the main Autonomic Logistics Operating Unit (ALOU) at Lockheed Martin facilities in Fort Worth took time, as did ensuring the data from home station units was transferred correctly to the deployed unit.

These two Service-led deployment demonstrations showed that ALIS operations will require significant additional time to initiate beyond setting up hardware modules, since the details of a network configuration and data file structure vary among base operating locations. ALIS requires a secure facility to house hardware, including SOU modules, mission planning workstations, and receptacles for transferring data to and from aircraft storage devices, which must be connected to power and external communications and integrated into a network with data exchanges occurring at multiple levels of security. It is difficult to establish and configure a network in the precise manner that ALIS requires, so network personnel and ALIS administrators have needed several days to troubleshoot and implement workarounds to

prepare ALIS for operations. Although Lockheed Martin has provided several techniques for transferring aircraft data from a main operating location SOU to a deployed SOU, data transfers have proven time consuming and have required high levels of support from Lockheed Martin. Also, relatively minor deviations in file structures relative to ALIS' specifications can cause the process to fail.

The program plans to release another increment of ALIS software this year—version 2.0.2, with added capabilities to support Air Force IOC declaration. However, it is struggling to meet the current schedule to deliver the planned content. A recent Program Office schedule assessment shows delays from 60–90 days that will slip the ALIS 2.0.2 installation at Hill AFB to at least October 2016, which does not align with the Air Force need date of 1 May for their planned IOC objective date of August 2016, but may support their planned IOC threshold date of December 2016. Cybersecurity testing of ALIS 2.0.2 is planned for this fall, but may need to slip or be accomplished using the earlier version of ALIS if the program cannot deliver version 2.0.2 it on time, adding associated risk to fielding systems and declaring IOC because adequate cybersecurity testing will not have been completed.

Delays in completing development and fielding of ALIS 2.0.2 will likely compound the delay already realized for ALIS 3.0, the last planned increment of ALIS, which is needed for IOT&E but is currently not scheduled to be released until March 2018. Although the program is considering deferring content and capabilities to make up schedule, the full set of capabilities for ALIS 3.0 will be needed to comply with the program's requirements and therefore are required for IOT&E.

Aircraft Reliability, Maintainability, and Availability. Although measurements of aircraft reliability, maintainability, and availability have shown some improvement over the last two years, sustainment relies heavily on contractor support, intense supply support to arrange the flow of spare parts, and workarounds by maintenance and operational personnel that will not be acceptable in combat. Measures of reliability and maintainability that have ORD requirement thresholds have improved since last year, but six of nine measures are still below program target values for the current stage of development; two are within 5 percent of their interim goal, and one—F–35B mean flight hours between maintenance events (unscheduled)—is above its target value. Aircraft availability improved slightly in CY15, reaching a fleet-wide average of 51 percent by the end of the year, but the trend was flat in the last few months and was well short of the program's goal of 60 percent availability that it had established for the end of CY14. The Marine Corps has recently described difficulties in completing pilot training requirements due to low aircraft availability with full functionality. For pilots to complete training tasks, aircraft must be nearly Fully Mission Capable (FMC), but low mission systems component reliability, software stability problems, and Prognostics & Health Management (PHM) limitations have contributed to limited aircraft ability to complete pilot training tasks. The FMC rate for the F–35 fleet has declined steadily since December 2014. Data from February 2016, the latest month available, show a fleet-wide FMC rate of 30 percent and an F–35B FMC rate of less than 14 percent. It is also important to understand that the program's metric goals are modest, particularly in aircraft availability, and do not represent the demands on the weapons system that will occur in combat. Making spare parts available more quickly than in the past to replace failed parts has been a significant factor in the improvement from 30 to 40 percent availability experienced two years ago. However, F–35 aircraft spent 21 percent more time than intended down for maintenance in the last year, and waited for parts from supply 51 percent longer than the program targeted. At any given time, 10 to 20 percent of the aircraft were in a depot facility or depot status for major re-work or planned upgrades, and of the fleet that remained in the field, on average, only half were able to fly all missions of the limited capabilities provided by Block 2B and Block 3i configuration.

The program showed improvement in 11 of 12 reliability metrics by May 2015; however, as I depicted in my annual report, 8 of the metrics are still below the program interim goals for this point in development, and it is not clear that the program can achieve the necessary growth to reach the reliability requirements for the mature system, at 200,000 total fleet flight hours. Many components have demonstrated reliability much lower than predicted by the contractor, such as fiber channel switches, main and nose-wheel landing gear tires, the display management computer for the helmet, and signal processors. These low-reliability components drive down the overall system reliability and lead to long wait times for re-supply, which negatively affects aircraft availability.

Maintainability metrics indicate flight line maintenance personnel are working extremely hard to keep up with the demands of unscheduled maintenance (e.g. trouble-shooting and fixing failures) and scheduled maintenance (e.g. inspections). Small improvements in maintainability metrics occurred in the past year, but the meas-

ures for all variants are far from the operational requirements. There are a few individual causes for long down times that may be addressed by the program, such as long cure times for low observable repairs, but many must be accepted as facts of life for the time being. Maintenance manuals and technical information must continue to be produced, verified, and validated for use by the military maintenance personnel so that they can learn how to generate combat missions in the most efficient manner. The current process requiring "action requests" to fill gaps in technical information, while improved, will not be acceptable for combat. F–35 maintainers must also dedicate a significant amount of time to scheduled maintenance, in addition to repairs. This accounts for over half of all maintenance time in the last year (from June 2014 through July 2015), a result of fielding an aircraft with an immature structural design that must be inspected for evidence of wear and cracking, such as that which has been found in the structural static test articles.

Fielded units, and the overall program, have a new challenge with managing multiple software and hardware configurations as aircraft emerge from depot and local modification processes. Modified aircraft include new parts and this should improve reliability metrics. However, managing multiple configurations requires continual, intense focus to ensure correct procedures and parts are used based on aircraft configuration and data elements tracked within ALIS.

Deployment sustainment results. As I outlined earlier in my statement, Service-led deployments over the past year have revealed challenges to adequate suitability performance, and provided useful lessons for future operations. More detail is provided below.

During the Cross Ramp Deployment Demonstration flying period at Edwards AFB during May 4—8, 2015, the operational test squadron flew 20 of 22 planned missions. The squadron originally intended to deploy four F–35A aircraft and planned most fly-days with two aircraft flying two sorties apiece, but could only make three aircraft available to participate in the exercise. The ALIS data transfer problems forced the detachment to operate in an ALIS-offline mode until the morning of May 7, which restricted aircraft maintenance to minimal, simple activities. The detachment was able to achieve a relatively high completion rate of planned sorties in spite of this largely because no mission systems were required for the flights, so failures in these components were left un-repaired. By the end of the deployment, one of three aircraft had to be towed back to the test squadron hangar because it was down for a flight system discrepancy that the detachment could not fix in time. The detachment also exposed problems with retaining spare part requisitions against aircraft when they are transferred between SOUs, and issues with keeping maintenance records intact when returning from ALIS-offline operations.

The shipboard flying period of the USS *WASP* deployment demonstration from May 18—28, 2015, excluding the return flights from the ship to home base on May 29, was not intended to maximize aircraft utilization rates, but showed difficulties in achieving adequate availability to support planned flight schedules. The six deployed F–35B aircraft were mission capable for flight operations approximately 55 percent of the time, which led to the detachment flying 61 of 78 planned missions. The Marine Corps reports a higher number of sorties than missions, since each vertical landing constituted a sortie, while each post-flight engine shut down constituted a mission. Several missions were canceled for weather, or other operational reasons, but 13 missions were canceled, apparently due to a lack of available aircraft. In order to consistently generate tactically relevant four-aircraft mission packages day after day, out of the normal complement of six F–35B aircraft onboard an *L*-class amphibious ship, the F–35B would likely have to achieve availability rates closer to 80 percent; although during the deployment demonstration, the detachment did generate a four-aircraft mission on one day. Fuel system reliability was particularly poor. This is more burdensome in the shipboard environment than at land bases, as fuel system maintenance in the hangar bay can restrict the ability to perform maintenance on other aircraft in the bay. Due to a fuel system problem that would have required an engine to be pulled, one aircraft was transferred on a one-time flight back to shore and swapped with an alternate aircraft, an option that would not exist in forward-deployed combat conditions. Aircraft availability and utilization varied widely among the seven different aircraft used in total on the deployment, with the top performing aircraft flying 20 missions, and the least performing aircraft flying only 2 missions, not including a one-time ferry flight to shore to be swapped. The ALIS data transfers also relied on combat-unacceptable workarounds, including using commercial Wi-Fi access to download aircraft files. Several factors limited the ability to draw more conclusions about shipboard integration of the F–35B from this deployment demonstration. These included the lack of the rest of the Air Combat Element (ACE) aircraft onboard ship except for the required Search and Rescue (SAR) helicopters; the use of developmental Support

Equipment (SE), vice the production-representative SE the Marine operational squadron is now equipped with; and no employment of ordnance.

The Marine Corps conducted an assessment of F–35B austere site deployed operations at Twentynine Palms, California, from December 8–16, 2015, with eight F–35B aircraft assigned. The Marines intended to fly four aircraft a day from an expeditionary landing field made of aluminum matting and with minimal permanent infrastructure, representing the type of temporary airfield that can be quickly built near the forward line of troops. The demonstration included the use of inert ordnance and production representative support equipment. Aircraft availability for this detachment was again in the 55 to 60 percent range, which led to a significant number of missed flights on the planned flight schedule. The detachment flew 41 out of 79 planned missions; however, 22 of the 38 missions not flown were due to high crosswinds which made landing and taking off from the aluminum matting too risky. Overall, 16 missions were lost due to either lack of aircraft availability, difficulties in transferring and accepting aircraft data into the deployed ALIS, or ground aborts. Propulsion system maintenance was particularly burdensome. Two F–35B aircraft received foreign object damage to their engine fan stages, a result from operating in rugged conditions with jet wash likely blowing small rocks into aircraft intakes. This prevented those aircraft from further participation in flying activities until repairs were completed just prior to the ferry flights home. A contractor technician was called in from the East Coast and was able to repair the engine damage on site, as opposed to having to perform a full engine swap. A further engine system discrepancy required an aircraft swap around mid-way through the detachment. Routine flight operations, such as aircraft start-up and basic troubleshooting, also relied heavily on contractor maintenance.

The Air Force sent a detachment of six F–35A operational test aircraft from Edwards AFB to Mountain Home AFB from February 8 to March 2, 2016, to simulate a combat deployment of this variant in preparation for Air Force IOC later this year. This demonstration employed both inert and live ordnance in the CAS and Aerial Interdiction roles, in conjunction with legacy platforms. Results from this demonstration are still too preliminary to report on in full, although some early observations were made. The detachment discovered a major discrepancy in the technical data for loading free fall ordnance after a released bomb hit the weapons bay door and then impacted and gouged the horizontal stabilizer. The aircraft returned to base safely and was eventually repaired on station, and the detachment coordinated with Lockheed Martin to correct the appropriate ordnance loading instructions. The deployment also successfully transferred aircraft data files within the autonomic logistics infrastructure (i.e., using ALIS, the Central Point of Entry, and the ALOU); however, there were some difficulties in establishing ALIS on the host Air Force network on Mountain Home AFB. Finally, the relatively frequent requirement to shut-down and restart an aircraft on start-up before flying due to software instabilities in vehicle and mission systems hampered the detachment's ability to conduct alert launches.

Key test range capability improvements are required for IOT&E, on which we have been working with the Office of the Secretary of Defense and Service staff for several years. In particular, these include the Air-to-Air Range Infrastructure-2 (AARI2) system, the instrumentation that allows the many engagements during complex test trials to be accurately assessed and shaped in real time; and the integration of the Electronic Warfare Infrastructure Improvement Program (EWIIP) emitters, that will simulate current, advanced threats on the range. For an adequate IOT&E, the integration of AARI2 with the F–35 should allow the F–35 Embedded Training modes to realistically emulate and display weapons employment data and threat indications to the pilot, and include the shot validation method that is being developed for this purpose. The planned schedule for AARI2 integration, however, does not align with the current plans for IOT&E and does not include these features. Therefore, the product may either be inadequate or late to need. The new EWIIP emitters, that will simulate current, advanced threats on the range, start arriving in fall of this year. However, until recently, Air Force integration plans fell short of what is needed for an adequate IOT&E, both in how the emitters are integrated with the range infrastructure and the degree of incorporation with the AARI2 battle-shaping instrumentation. We continue to work with the Air Force to correct these problems, and ensure we get the most of the investment made in these emitters. There is no alternative to correcting these problems if IOT&E is to provide a representative threat environment—an environment that has been in existence, and robustly so, in the real world for several years. Not properly incorporating these assets, in a realistic way, will result in a test of the F–35 only against decades-old threats, which do not represent the intended operational environment for this fifth-generation system. I assess the technical challenges to the in-

tegration requirements I mention here as relatively minor; this test concept is not new. Unfortunately, the issues seemed to stem primarily from cultural resistance to change and to the adoption of modern technology.

Of all the issues mentioned earlier that threaten IOT&E spin-up and start, the most significant are the modifications needed for operational test aircraft, Block 3F completion (including flight test, weapons deliveries, and envelope release), and completion of ALIS 3.0. The program has an executable plan to pull completion of the modifications back from 2019 to 2018; however, the Services must commit to executing that plan, which has not yet occurred. The Block 3F schedule, even with significant improvements in software stability, deficiency resolution, and flight test rates, still appears to extend into 2018 before the capabilities will be ready and certified for IOT&E. Inadequately tested mission data and failure to provide the simulation environment will likely not delay the start of IOT&E, but will affect the results and adequacy of the test, respectively, and the former will likely limit significantly the ability of the F–35 to be used in combat against existing, modern, stressing threats. Therefore, despite recent progress with Block 3iR6.21 software stability, a mid-2018 start for IOT&E appears to be the earliest viable date based on when the modifications, full Block 3F capabilities (including envelope and weapons), and ALIS 3.0 will be ready. Based on the issues above that will not likely be resolved or ready until 2018 or later, I am concerned that the program may not have adequate resources to complete the required System Development and Demonstration activities prior to IOT&E.

Block Buy. In my annual report, I raised several questions regarding the program's proposed "block buy" to combine three production lots comprising as many as 270 U.S. aircraft purchases to gain near-term savings. My understanding is that the program and the Services have decided to delay the consideration of the block buy for at least another year, possibly starting in fiscal year 2018. Nonetheless, in that case, all of the questions I pose in my annual report remain valid, since IOT&E will not start until fiscal year 2018, at the earliest, and will not be complete until later that year.

Follow-on Modernization (FoM). The program's proposed "F–35 Modernization Planning Schedule" is overly optimistic and does not properly align with the program's current software development schedule, which is also unrealistic. The program recently announced that the FoM development effort will require new processors—referred to as Technical Refresh 3, or TR3—with more capacity to permit the new capabilities to be hosted on the aircraft, at a cost of $700 million. This additional cost was not part of the planned Block 4 FoM program, so it is currently unfunded and the Services must program this into their fiscal year 2018 budget submissions. Also, there is a four-year gap between the final planned Block 3F software release in 2016 and fielding of the first proposed modernization increment, labeled Block 4.1, in late 2020. The proposed schedule also does not depict any incremental software releases to correct open Block 3F deficiencies and new discoveries, likely to be found during the remaining developmental testing and IOT&E, prior to adding the proposed new Block 4.1 modernization capabilities. Such a schedule greatly increases risk to development and testing of Block 4 due to the inevitably substantial number of deficiencies and untested fixes upon which the new Block 4 capabilities will be added. Despite the significant ongoing challenges with F–35 development, including the certainty of additional discovery, the proposed modernization schedule is very aggressive; it finalizes the content of Blocks 4.1 and 4.2 in early 2016. Then, before or during IOT&E, the program would award contracts to start simultaneous development of Blocks 4.1 and 4.2 in 2018, well prior to completion of IOT&E and having a full understanding of the inevitable problems it will reveal. Also, the proposed Block 4 FoM plan and schedule do not clearly depict acquisition milestones, despite the complexity and substantial number of capabilities to be implemented and funding required.

Even though the baseline F–35 System Development and Demonstration (SDD) program, including delivery of Block 3F capabilities and ALIS 3.0 (and therefore IOT&E start), is clearly going to slip into 2018, the program still claims that SDD will end in 2017. In fact, the program has apparently asked the Services to provide additional bridge funding for test infrastructure in fiscal year 2018–2019, even though the DT activities extending into 2018 (and IOT&E into 2019) are clearly part of SDD and therefore should already be funded. Also, the program plans to significantly cut the test force in the 2018–2019 timeframe, precisely when the program should be developing and testing an incremental software update of Block 3F to correct critical deficiencies and new discoveries from IOT&E prior to adding the new Block 4.1 capabilities. Furthermore, the Block 4 FoM plan and schedule still do not allocate adequate schedule and resources (i.e., enough test aircraft and time) for developmental test (DT) and operational test and evaluation (OT&E) of each incre-

ment, consistent with the approach being used for F–22 follow-on development. The proposed Block 4 FoM plan reduces test infrastructure from 18 DT aircraft and 1,768 personnel to just 9 aircraft and approximately 600 personnel. The proposed Block 4 FoM plan also does not allocate enough time for test of the significant new capabilities including in each increment. For example, the F–22 Block 3.2B program planned approximately two years for DT flight test and one year of OT&E spin-up and flight test, versus approximately one year for DT flight test and six months for OT&E of F–35 Block 4.2, which has more new capabilities and weapons than F–22 Block 3.2B. Also, the F–35 program claims the new F–35 Block 4 software, which is designed to run on TR3 processors, will be backward-compatible to run in the hundreds of aircraft with TR2 processors. However, the program's current proposed Block 4 plan apparently does not include resources (funding, schedule or TR2-equipped test aircraft) to conduct the necessary developmental laboratory and flight testing followed by OT&E of the new Block 4 capabilities in aircraft equipped with the old TR2 avionics hardware. For these reasons, any proposed reductions in test infrastructure for Block 4 FoM should be reexamined due to the substantial number and complexity of new capabilities to be developed and fielded, multiple aircraft hardware configurations, need for regression testing, and inadequate time allocated for DT and OT&E for each increment.

In summary, it is increasingly clear that the current plans being described by the program office for F–35 Block 4 Follow-on Modernization are not executable. The program, warfighters, partners and taxpayers would be better served by a realistic plan that is informed by, and properly addresses, the many lessons learned from the ongoing F–35 program, as well as from the ongoing F–22 upgrade program. The corrective actions I recommend include the following:

- Updating the Block 4 cost estimate and schedule to include the inevitably required additional costs and time to actually execute FoM (i.e., $700 million for TR3, test infrastructure bridge funding for fiscal year 2018–2019, the additional test resources for regression testing for Block 4.1 on TR2 processors, etc.);
- Rigorously justifying the need for the new open-architecture TR3 processors including the specifics of the shortfalls of the TR2 processors and the extent to which these shortfalls will affect Block 3F performance;
- Adding a software maintenance release in 2019 and slipping Block 4.1 development by a year to provide the time needed to correct the significant deficiencies that will inevitably emerge from IOT&E and remain from SDD;
- Re-structuring the content of the Block 4 increments to incorporate a realistic and lesser amount of content so development and testing will fit within the compressed two-year cycles driven by the planned aircraft production and delivery schedules;
- Adding the time and sustaining the test force needed to conduct adequate developmental and operational testing consistent with the complexity and number of new capabilities to be incorporated in each increment of Block 4.

These changes to the program's current plans for Follow-on Modernization are essential for it to succeed rather than be set for failure from the outset.

Chairman MCCAIN. Mr. Sullivan, welcome.

STATEMENT OF MICHAEL J. SULLIVAN, DIRECTOR OF ACQUISITION AND SOURCING MANAGEMENT, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. SULLIVAN. Thank you, Chairman McCain, Senator Reed, members of the committee. I have a written statement for the record, but I would like to just take this time to briefly highlight what we consider to be the most important challenges facing the program moving forward.

In addition to my written statement, my report to this committee and others, which was issued on April 14, contains more details on the program's progress to date.

First, although the program has managed costs very well since it is Nunn-McCurdy breach and subsequent rebaselining in 2012, it still poses significant future affordability challenges for the Department and Congress. As the program begins procuring more aircraft, the Department is expected to spend on average about $13

billion per year over the next 22 years, until all planned purchases are complete in 2040.

These annual funding levels will present challenges as the program stacks its funding priorities against other large acquisitions, including the B–21 bomber, KC–46 tanker, the *Ohio*-class submarine replacement, the new carrier, and many more.

Second, the Department now plans to add new capability known as Block 4 to the F–35 that is beyond its original baseline capability, and it is planning to manage that effort as part of the existing program, rather than establishing a separate business case and baseline for that effort. This has significant implications as far as Congress' ability to provide oversight and holding the program accountable.

The new work has a projected cost of about $3 billion over just the next 6 years, and that price tag alone would qualify it as a major defense acquisition program in its own right. We believe it should be managed as such, with its own separate business case to allow for transparency and accountability.

Third, the F–35 software development is nearing completion, but the program faces challenges in getting all of its development activity completed on time for operational testing, as we just heard Dr. Gilmore talk about. It has completed over 80 percent of its developmental flight tests and is now working to close out flight testing of its final block of software, Block 3F. This final block is critical as it will provide the full warfighting capability to the aircraft.

Program officials have estimated as much as a 3-month delay right now to completing Block 3F testing, and our own analysis indicates that it could be closer to 6 months. I think Dr. Gilmore's analysis, as he just stated, has it more than that. Getting that developmental testing done is critical, of course, to getting operational testing done and IOCing the aircraft.

With regard to technical risk, the program has found fixes for earlier problems, problems such as the helmet display and the engine, and it is working now to find solutions for two other challenges, the ejection seat problem and the carrier variants wing structure. There are cracks in the wing structure.

Perhaps the biggest outstanding technical risk for the program today, though, as has been discussed already, is the Autonomic Logistics Information System known as ALIS. As you know, ALIS is a complex system that supports operations, mission planning, supply chain management, maintenance, and many other processes.

In our companion report also issued on April 14, we documented several issues with ALIS, most importantly concerning its inability to deploy right now and the lack of needed redundancy at this point that could result in operational and schedule risks in the future.

Finally, manufacturing and production data continue to show a positive trend toward more efficient production, and that is good. The amount of labor hours to build each aircraft continues to go down. The engineering changes that are coming out of the test program have been reduced significantly. The contractor is now delivering aircraft on time or, in some cases, ahead of schedule.

We continue to monitor the measures for aircraft and engine reliability and maintainability. While they still fall short of expecta-

tions, they continue to improve, and there is still time to achieve the program's required goals in that area.

I will close with that, Mr. Chairman. I look forward to your questions.

[The prepared statement of Mr. Sullivan follows:]

United States Government Accountability Office

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Testimony

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F-35 JOINT STRIKE FIGHTER

Development of New Capabilities Requires Continued Oversight

Statement of Michael J. Sullivan, Director
Acquisition and Sourcing Management

GAO-16-634T

Chairman McCain, Ranking Member Reed, and Members of the Committee:

Thank you for the opportunity to discuss our recently completed work on the F-35 Joint Strike Fighter (F-35), also known as the Lightning II. With estimated acquisition costs approaching $400 billion, the F-35 is the Department of Defense's (DOD) most costly acquisition program. Through this program, DOD is developing and fielding a family of strike fighter aircraft, integrating low observable (stealth) technologies with advanced sensors and computer networking capabilities for the United States Air Force, Navy, and Marine Corps, as well as eight international partners.[1] The F-35 family is comprised of the F-35A conventional takeoff and landing variant, the F-35B short takeoff and vertical landing variant, and the F-35C carrier-suitable variant. Over time, the program has made a number of changes affecting the planned quantities and associated costs. According to current projections, the U.S. portion of the program will require acquisition funding of $12 billion a year, on average, from now through 2038 to complete development and procurement of 2,457 aircraft. DOD also estimates that the F-35 fleet will cost over $1 trillion to operate and support over its lifetime, which poses significant long-term affordability challenges for the department.

As we have previously reported, the F-35 program has had significant cost, schedule, and performance problems over its life that can largely be traced to (1) decisions made at key junctures without adequate product knowledge; and (2) a highly concurrent acquisition strategy with significant overlap among development activities, flight testing, and production. [2] This written statement summarizes key aspects of our most recent report, issued on April 14, 2016.[3] Our work was conducted in

[1] The international partners are the United Kingdom, Italy, the Netherlands, Turkey, Canada, Australia, Denmark, and Norway. These nations contributed funds for system development and all but Canada and Denmark have signed agreements to procure aircraft. In addition, Israel, Japan, and South Korea have signed on as foreign military sales customers.

[2] GAO, *Joint Strike Fighter: DOD Actions Needed to Further Enhance Restructuring and Address Affordability Risks*, GAO-12-437 (Washington, D.C.: June 14, 2012); *Joint Strike Fighter: Current Outlook Is Improved, but Long-Term Affordability is a Major Concern*, GAO-13-309 (Washington, DC.: Mar. 11, 2013)

[3] GAO, *F-35 Joint Strike Fighter: Continued Oversight Needed as Program Plans to Begin Development of New Capabilities*, GAO-16-390 (Washington, D.C.: April 14, 2016)

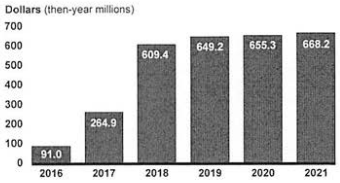
response to a provision of the National Defense Authorization Act for Fiscal Year 2015, for GAO to review the F-35 acquisition program annually until the program reaches full-rate production. For this review we assessed program (1) affordability, remaining development, and ongoing manufacturing, and (2) future modernization and procurement plans.

For our April 2016 report, we analyzed total program funding requirements. We analyzed program documentation including management reports, test data and results, and internal DOD program analyses. We also collected and analyzed production and supply chain performance data, and interviewed DOD, program, and contractor officials. We reviewed budget documents to identify costs associated with the modernization effort and collected and analyzed information regarding capability and oversight plans. We also compared and contrasted DOD's F-35 acquisition and modernization plans with best practices identified by GAO and as well as relevant DOD policies and statutes. Further details on our scope and methodology can be found in the full report. The work upon which this statement is based was conducted in accordance with generally accepted government auditing standards.

In brief, although the estimated F-35 Joint Strike Fighter (F-35) program acquisition costs have decreased since 2014, the program continues to face significant affordability challenges. DOD plans to begin increasing production and expects to spend more than $14 billion annually for nearly a decade on procurement of F-35 aircraft. Currently, the program has around 20 percent of development testing remaining, including complex mission systems software testing, which will be challenging. At the same time, the contractors that build the F-35 airframes and engines continue to report improved manufacturing efficiency and supply chain performance.

DOD plans to manage F-35 modernization as part of the existing program baseline, which has oversight implications. DOD has begun planning and funding significant new development work to add to the F-35's capabilities, known as Block 4. The funding needed for this effort is projected to be nearly $3 billion over the next 6 years (see figure below), which would qualify it as a major defense acquisition program in its own right.

F-35 Joint Strike Fighter Block 4 Development Costs Increase Near-Term Funding Needs



Source: GAO analysis of Department of Defense data. | GAO-16-634T

DOD does not currently plan to manage Block 4 as a separate program with its own acquisition program baseline but rather as part of the existing baseline. As a result, Block 4 will not be subject to key statutory and regulatory oversight requirements, such as providing Congress with regular, formal reports on program cost and schedule performance. A similar approach was initially followed on the F-22 Raptor modernization program, making it difficult to separate the performance and cost of the modernization from the baseline program. Best practices recommend an incremental approach in which new development efforts are structured and managed as separate acquisition programs with their own requirements and acquisition program baselines. The F-22 program eventually adopted this approach. If the Block 4 effort is not established as a separate acquisition program, transparency will be limited. Therefore, it will be difficult for Congress to hold it accountable for achieving its cost, schedule, and performance requirements.

Given that congressional oversight challenges are presented by DOD's plan to manage Block 4 under the current acquisition program baseline, in our April 2016 report, we recommended that the Secretary of Defense hold a Milestone B review and manage F-35 Block 4 as a separate and distinct major defense acquisition program with its own acquisition program baseline and regular cost, schedule, and performance reports to Congress. DOD did not concur with our recommendation citing that it views Block 4 as a continuation of the existing F-35 acquisition program and it is exploring ways to provide further transparency by establishing separate budget lines, instituting contract cost reporting, and developing an independent cost estimate. We continue to believe that our recommendation is valid. Therefore, in our April 2016 report, we made a matter for congressional consideration suggesting that Congress direct

DOD to manage F-35 follow-on modernization, Block 4, as a separate and distinct acquisition program.

Chairman McCain, Ranking Member Reed, and members of the Committee, this completes my prepared statement. I would be pleased to respond to any questions you may have. We look forward to continuing to work with the Congress as we continue to monitor and report on the progress of the F-35 program.

GAO Contacts and Staff Acknowledgement

For further information on this statement, please contact Michael Sullivan at (202) 512-4841 or sullivanm@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals making key contributions to this statement are Travis Masters, Peter Anderson, Jillena Roberts, and Megan Setser.

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Chairman McCAIN. Thank you very much. I thank the witnesses.

General Bogdan, how many military, government civilians, and full-time equivalent contractor positions are assigned to the Joint Program Office? What is the annual cost to operate the office?

General BOGDAN. Sir, today, if you include the test force at Pax River and the test force at Edwards Air Force Base, which are not necessarily part of my program office but I pay for them, just like I do support contractors, the number is about 2,590. The annual cost to operate the JPO is on the order of about $70 million a year.

That includes pay for salaries. That includes leasing facilities and space, computers, IT, everything wrapped up.

Chairman MCCAIN. The information that I have is that it is nearly 3,000 and the cost is $300 million a year, but $70 million a year to run an office of a program is pretty disturbing.

Secretary Kendall, last year's NDAA included report language that directed the Secretary of Defense to either revalidate the F–35 total by a quantity of 2,443 for all variants or submit a new number by May 25, 2016. Does the Department intend on meeting this requirement on time?

Mr. KENDALL. Mr. Chairman, as far as I know, yes, we are.

Chairman MCCAIN. I was interested, Dr. Gilmore, you said that the IOC is likely to be delayed. Have you any idea how long that delay would be in the IOC?

Dr. GILMORE. Are you speaking, Mr. Chairman, about the IOC for the Air Force with Block 3i?

Chairman MCCAIN. Yes.

Dr. GILMORE. I think it is unlikely the Air Force will meet its objective date, which is mid-2016, but it could meet its threshold date, which is later in the fall.

Chairman MCCAIN. In this issue, Mr. Sullivan, of pursuing a block buy, can you provide any examples of a program pursuing a block buy or multiyear procurement strategy prior to a full-rate production decision?

Mr. SULLIVAN. You are referring to the proposal right now to buy aircraft on a 3-year buy?

Chairman MCCAIN. Yes.

Mr. SULLIVAN. I do not have any examples of that. The only example I know of a block buy situation is our usual multiyear procurements, which require a lot of criteria to show that the industrial base is stable, the design is stable, they are ready to produce. Usually, it comes much later in a production line.

I do not think there is even any criteria for that kind of block buy.

Chairman MCCAIN. Dr. Gilmore, in your statement, you said the limited and incomplete F–35 cybersecurity testing accomplished to date has nonetheless revealed deficiencies that cannot be ignored. Can you elaborate on that?

Dr. GILMORE. I would be happy to do so in the appropriate forum. It would require the discussion of classified information. We treat cyber vulnerabilities, the details of them, as classified. But they are significant, in my judgment.

Chairman MCCAIN. General Bogdan, Dr. Gilmore believes that there will be a delay in the IOC of the Air Force version. What is your response?

General BOGDAN. Sir, there are many things that the Air Force needs me to deliver to them before they can declare IOC. All of the things that are necessary for them to make that decision are on track for a 1 August 2016 declaration, with the exception of ALIS. I believe ALIS is approximately 60 days behind. Therefore, I would put ALIS delivery, which is a criteria for them, at about 1 October 2016, as opposed to 1 August.

They have until December, which is their threshold date, so I think they will meet their IOC criteria within that period, but not exactly on 1 August.

Chairman MCCAIN. The fiscal year 2016, General, limited funds for the procurement of F–35As until Secretary James certified that the F–35A aircraft delivered in 2018 will have the full combat capability with Block 3F hardware, software, and weapons carriage.

Have you recommended or do you intend to recommend to Secretary James that she make the certification?

General BOGDAN. Yes, Senator. I am preparing the package now to forward to the Secretary of the Air Force with my recommendation that she make that certification. I needed a few pieces of information before I could feel confident asking her to certify. One of those pieces was that the software stability issues that were spoken about before were behind us. I believe they are now. Therefore, I believe that 3F will be delivered in fiscal year 2018, with the full capability, so I will forward the package to her now.

Chairman MCCAIN. Finally, Dr. Gilmore, given the size and cost of Block 4, would you believe it should be treated as a separate program for Nunn-McCurdy purposes or just as part of the F–35 program?

Dr. GILMORE. Senator, I remind you that is not my decision. However, in taking a look at what I have seen in the current plans for Block 4, as I mentioned in my written statement, they need to be scrubbed, rigorously, in my view. Anything that will help in that rigorous scrub and bring clarity to desired performance and cost would be useful. I think that would be a good idea, but again, I hasten to say it is not my decision.

Chairman MCCAIN. Senator Reed?

I thank the witnesses.

Senator REED. Mr. Chairman, with your permission, I would like to yield to Senator Donnelly. He has a pressing engagement elsewhere.

Senator DONNELLY. Thank you, Mr. Chairman.

I want to thank the witnesses.

Secretary Kendall, from 1996 to 2007, as the F–35 was under development, DOD supported an alternate engine program. The push for the F136 engine was controversial in later years, but I am interested to hear from you, and others who have thoughts on this, do you believe the alternate engine program was a smart strategy in those early R&D [Research & Development] years?

Mr. KENDALL. The question of the alternate engine, and I was in my position for the last couple years of that debate, was really a question of the economics associated with it. Basically, a decision was made that the economic case was not there to carry a second engine. That entailed taking some risk, of course, when you only rely on one. That has proven out.

The engine of the F135 is performing. We are getting cost out of that, not as quickly nor as much as we would like, but we think that the strategy that we have embarked on is working.

We are also funding some advanced development for follow-on engines. It is competitive development at this point. They could be cut into the production several years from now, if we can fund the

EMD program for that. But affordability has been a major constraint on the program overall, including on the engines.

Senator DONNELLY. General Bogdan, I am particularly concerned about the performance of the F135, given that Pratt & Whitney was recently selected to build the engine for the B–21. I am concerned that looking back on the history of the F–35, the F–16, and others, there are performance issues, and I quote from the Department of Defense annual report, "recurring manufacturing and quality issues" that have been an issue with Pratt & Whitney for the F–35. Could you comment on that, please?

General BOGDAN. Yes, sir. The quality issues that you are talking about are primarily not at the Pratt & Whitney level. They are at their suppliers' level. Nonetheless, Pratt & Whitney is responsible for those suppliers.

Over the last few years, we have improved our on-time delivery of engines significantly. But early on in the program, you are correct, sir, that we were seeing quality escapes and manufacturing issues with the lower tier suppliers. I think at this point in time, the manufacturing of the engine is much more mature than it was a few years ago.

Relative to the performance of the engine, today, the F135 engine has about 52,000 fleet hours on it, and it is maintaining about a 94 percent full mission capable rate. That is a very, very good number. In the endgame of the program, we were shooting for 95 percent, so here we are less than a quarter of a way through the full maturity of the airplane, and we are just about achieving that reliability we are looking for.

However, that is not to say that there are not issues. We are dealing with the engine right now and changes we are making to make it more affordable, more producible, and increase the reliability.

But from that perspective, I have been fairly happy with the performance of the F135.

Senator DONNELLY. Mr. Sullivan, they have said that their engines are well ahead of the 2020 requirements, but in your report last month, GAO [Government Accountability Office] wrote that the F–35A and F–35B engines are at about 55 percent and 63 percent of where the program expected them to be. Can you explain the difference in that assessment, sir?

Mr. SULLIVAN. I do not know that I can explain the cause of that, but we have found that the engine reliability and the measurements that we look at in terms of coming up a reliability growth curve for an engine during development, Pratt & Whitney has been pretty consistently below where they were expected to be, but I would say they have been improving in the last 2 or 3 years, in that respect. It seems like they are beginning to retire some of that risk.

Senator DONNELLY. This is to all the panelists. What is the top lesson you have learned through the F–35 acquisition process that can inform future major acquisitions across the services?

Mr. Sullivan, I would like to start with you.

Mr. SULLIVAN. I think, obviously, the first thing that we have learned with this is that you should not concurrently develop tech-

nology with a product, and you should not concurrently buy aircraft while you are still developing them. That is the number one thing.

Senator DONNELLY. Dr. Gilmore?

Dr. GILMORE. The F–35 was an extreme example of optimistic if not ridiculous assumptions about how a program would play out.

The decision to begin production before much of development had really been accomplished was a very bad one, as Mr. Kendall has discussed. But although an extreme example, it is not unprecedented because the Department is typically very optimistic about schedules and costs, which then sets up the program managers who are put in charge of these programs to look like failures from the outset, which is a terrible thing to do to them.

Senator DONNELLY. Thank you. I would love to hear the other two, but I am out of time.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Inhofe?

Senator INHOFE. Thank you, Mr. Chairman.

I think the question that I was going to ask may have been answered in the second sentence in your opening statement when you said the F–35 will form the backbone of the U.S. air combat superiority for decades to come.

We keep hearing things to the contrary. You might remember when Secretary Hagel, just in February 2014, he said, "American dominance in the seas, in the skies, and in space can no longer be taken for granted." General Frank Gorenc, the USAFE [United States Air Force in Europe] commander, said, just in September last year, this is his quote, "The advantage that we had from the air I can honestly say is shrinking. This is not just a Pacific problem. It is as significant in Europe as it is anywhere else on the planet. I do not think it is controversial to say they have closed the gap in capability."

General Bogdan, do you agree with that?

General BOGDAN. Sir, I would agree with that. Our adversaries today are full speed ahead and accelerating the development of significant military capabilities to thwart ours, both in air-to-air and air-to-ground.

I believe that F–35 is absolutely necessary now and in the future to give you and the Nation options to take an airplane and go anywhere on the face of the Earth at a time of our choosing and be survivable and hit a target. I do not believe there is any other airplane in the world that can do that today. However, the F–35 can do it and will do it for many years.

Senator INHOFE. You are talking about some fifth generation aircraft from both Russia and China. You have the T–50 and then the Chinese have the J–20. I think they also have the J–31 or something like that, maybe lagging behind a little bit.

Now, when you compare those, normally they talk about we are going to be stealthier; we are going to have better radar. Why don't you give us an idea of what the opposition is doing right now, and specifically in what areas that we are better?

General BOGDAN. Senator, I will try to do that without walking across the line of sensitive information or classified.

One of the things that folks like to think about when they look at those adversary airplanes is that they look a lot like ours. That

is a true statement. Much of the design of those airplanes came on the outer mold line from what we developed in our F–22s and F–35s.

Senator INHOFE. I understand that. Yes.

General BOGDAN. What makes us better and special is what is on the inside of these airplanes. Our radar, our multi-sensor fusion, our ability to take information in the battlespace and provide it to the pilot in such a way that he knows everything that is going on 360 degrees around him——

Senator INHOFE. Okay, that is good.

General BOGDAN.—and the weapons to employ that knowledge are what makes it different.

Senator INHOFE. That is good.

Recently, some pretty high individuals are talking about the fact on the F–22s, they are really using those a lot more than we anticipated. This is for anybody here. Yet in your presentation, you talk pretty specifically about the numbers of copies we are going to have, the As, the Bs, and the Cs.

Most of us here on this side of the table remember we went through this thing with F–22s. Originally, it was going to be 750, then it was going to be 380-some, then 187 ultimately. Now that is quite a deterioration from the original numbers.

Is there a reason that you do not believe we are going to experience the same thing with the F–35?

General BOGDAN. Sir, I cannot assume in the future what the U.S. services will do. But what I will tell you is that the major difference between an F–22-type program and the F–35 program are significant in that we have many FMS [Foreign Military Sales] and foreign partners who are also buying the airplane. If they continue to buy the airplane, the price will continue to come down. That stabilizes——

Senator INHOFE. That is where you come up with the $85 million ultimately, taking that into consideration.

General BOGDAN. Yes, sir.

Senator INHOFE. One last thing, we were all a little disturbed two years ago when we thought we were going to have a B model at Farnborough and at the last minute we had to bag it. Of course, we did not have anything at France, in Paris. Are you pretty confident it is going to make the Farnborough this year?

General BOGDAN. Yes, sir. We are planning a deployment of five F–35s to Farnborough and RIAT [Royal International Air Tatoo], two A models and three B models, one of those being a U.K. airplane.

Senator INHOFE. How many of those will be flying?

General BOGDAN. We will fly all of those airplanes at Farnborough and RIAT.

Senator INHOFE. I look forward to it.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Reed?

Senator REED. Thank you very much, Mr. Chairman.

Dr. Gilmore, I just want to clarify one your comments. You were talking about, I think, the difficulty of operating with four aircraft and, essentially, the multi-sensor fusion of the four aircraft oper-

ating together. That seems to be the preferred form of operation. Is that an accurate recollection?

Dr. GILMORE. Yes. Four-ship will often be used because that will provide information from four aircraft that must be fused in order to provide the situational awareness that General Bogdan just mentioned is so critical to dealing with future threats and current threats.

Senator REED. There is a current difficulty in making those systems, even if they operate in a single aircraft, operate effectively together?

Dr. GILMORE. Fusion has been a challenge to make work well. It will, based on what I have seen, continue to be a challenge. It is a very hard problem. It does not surprise me that it is turning out to be a hard problem, to make the fusion work well, because you get information from different sensors on the same aircraft as well as from different aircraft. You have to have software that then sorts through all that and says, "Oh, this signal that I got from this sensor is from the same target as this sensor on another aircraft." That is a very hard physics problem. It is not a matter of just simply writing code for graphical user interface. It involves detailed understanding of physics, of the propagation of the signals, and so forth, and the errors in the signals.

That is going to continue to be a challenge, and it will require a lot of iterative test-fix-test where you guess at solutions and then use subject-matter experts to guess at solutions, try to implement them, test them to see how they work. That is a time-consuming process.

Senator REED. Just a clarification, in the IOC status, do you really get into that multi-aircraft fusion issue? Or is that just simply the aircraft being able to fly?

Dr. GILMORE. The Air Force is the one, just as the Marines did for their own initial operational capability, the Air Force sets the standards for determining what constitutes sufficient performance for IOC.

I cannot remember the details of what the Air Force has said about fusion, but obviously the more fusion capability they have, the better. It will be limited because Block 3i provides the same basic capability that Block 2B did with the new processor, and there were fusion shortfalls in Block 2B that Block 3F is meant to surmount.

Senator REED. Thank you very much.

Mr. Secretary, from your perspective, what do you think the most significant challenges are? I know General Bogdan talked about ALIS as a key issue in terms of resolution. Any others that you would identify, that you are focused on, and your approach to deal with them?

Mr. KENDALL. I think ALIS is the leading problem in terms of achieving IOC for the Air Force on time. The issue that was mentioned earlier on stability I think was a concern, but that seems to be getting under control.

There are a number of concerns with just the pace of testing and how much has to be done. I know some steps General Bogdan is taking to alleviate some of that schedule pressure that he has.

I think it is a suite of a lot of things that have to happen. At the end of the day, the Air Force will make the decision as to when they think it is ready to clear IOC.

My experience with the Marine Corps, I think the Air Force will be exactly the same. They are not going to do that until they are comfortable with the product that they have.

Senator REED. One of the major issues, long term, is the sustainment cost of the aircraft, which seemed to be quite significant. Can you describe steps that you and General Bogdan are taking to lower those costs? We want to lower the cost of the platform, but we certainly would like to lower the cost long term of maintenance and operation.

Mr. KENDALL. So far, we have been able to take about 10 percent out of the cost estimate at the time of the rebaselining in a variety of things to do that. We are looking at various ways to structure the business case, if you will, for the sustainment. That is a work that is still in progress. We do not want to remain in a sole-source environment for any more of that than we possibly have to. Introducing competition is a big part of it.

We are looking for creative ways to work with our partners so that we do things together as opposed to separately, because there are cost efficiencies associated with that.

General Bogdan I think probably has a very long list he could give you in addition to that.

Senator REED. Can you give me your top two or three, General, in my time?

General BOGDAN. Yes, sir. We started a fully funded reliability and maintainability program about two years ago, where we looked at each and every component on the F–35 to determine if it was maintaining its performance on the airplane at the pace at which we needed it. That has proven to be very cost-effective for us, so we are going after those pieces and parts on the airplane that are not performing well.

We also have a cost war room, where we look at every idea that comes from the field on how to better maintain the airplane. A perfect example of that is the original concept for tires, wheels, and brakes on this airplane was to ship all that off to a contractor somewhere. The U.S. Air Force, the U.S. Navy, the U.S. Marine Corps have that capability today with their legacy systems at their bases, so we are moving all of that work to them. That reduces about 40 percent or 50 percent of the cost and the turn time of fixing things like that. We are going about systematically trying to get every piece of cost out of the program.

Senator REED. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Senator Ayotte?

Senator AYOTTE. Thank you, Chairman.

General Bogdan, I wanted to ask you, recently, General Welsh came before our committee and said that the mission capability of the A–10 will not be replaced by the F–35, yet the Web site for the Joint Strike Fighter program says that the F–35 will replace the A–10. Can you answer this question for us? There is an inconsistency there, and I would like to know, is General Welsh right or is your Web site right?

General BOGDAN. Thank you for that question, ma'am.

First, the force structure of the U.S. Air Force and its fighter inventory is well beyond my purview. I will not try to explain what General Welsh said or what the decision-making processes for the Air Force on replacing their fighter inventory.

Senator AYOTTE. But, General, I think this is an important question. If General Welsh comes before our committee and says the F–35A is not going to replace the A–10, and yet the Joint Strike Fighter Web site says that the F–35A will replace the A–10, it is pretty important as we think about the capabilities of the A–10.

Secretary Kendall?

Mr. KENDALL. I cannot speak for certain for General Welsh, but I think what he was trying to say was that we will in fact—first of all, I think both statements are correct. We will, in fact, replace the——

Senator AYOTTE. Both statements cannot be correct.

Mr. KENDALL. Well, we will, in fact, replace the A–10s with F–35s. That is the plan. But the F–35 will not do close-air support mission the same way the A–10 does. It will do it very differently.

The A–10 was designed to be low and slow and close to the targets that it was engaging, relatively speaking. We will not use the F–35 in the same way as the A–10. It will perform the mission very differently.

Senator AYOTTE. Let me ask, Dr. Gilmore, it is going to perform the mission very differently. Is it not important that we understand how the two compare? I would ask you, will there be comparison testing, not just with the A–10 but with other comparative airframes that the F–35 is going to replace? How will the operational testing, comparing the close-air support capabilities of the F–35A and A–10, be conducted?

Dr. GILMORE. Senator, if I could just point out, I have here the operational requirements document for the F–35. On page two, it says the F–35A will rely primarily upon the F–22 for air superiority and will assume the current F–16 role as the low end of the USAF high-low fighter mix strategy and the A–10 role.

That is in the operational requirements document.

Senator AYOTTE. Okay. If it is going to perform the A–10 role, it is a pretty darn important role to our men and women on the ground. What about the fly-off? How will that go down?

Dr. GILMORE. We are going to do a comparative test of the ability of the F–35 to perform close-air support, combat search and rescue, and related missions, with the A–10. We are also going to do a comparison test as integral part of operational test and evaluation of the ability of F–35 to perform suppression and destruction of enemy air defenses with the F–16 and F–18. This operational requirements document has numerous citations to the performance expected in F–35 in relationship to the aircraft it is going to replace, so that operational testing is entirely consistent with the operational requirements document.

The comparison testing is also not unprecedented. There was comparison testing between the F–22 and the F–15, and there has been comparison testing as part of other operational tests, including things like tactical vehicles, like the Joint Light Tactical Vehicle and the Humvee.

To me, comparison testing just makes common sense.

Senator AYOTTE. Of course.

Dr. GILMORE. If you are spending a lot of money to get improved capability, that is the easiest way to demonstrate it, to do rigorous comparison tests.

With regard to CAS [Close Air Support], we are going to do it under all the circumstances that we see CAS conducted, including under high-threat conditions in which we expect F–35 will have an advantage, and other conditions requiring loitering on the target, low-altitude operations, and so forth, in which there are a lot of arguments that ensue about which aircraft might have the advantage, the A–10 or the F–35. But that is what the comparison test is meant to show us.

Senator AYOTTE. I think that is really important, so that we can understand the capability comparisons there.

General Bogdan, I wanted to ask you, I had asked a question of General Welsh in March as to when you expect the SDB [Small Diameter Bomb] II to achieve demonstrated full-mission capability for the F–35A.

General BOGDAN. Ma'am, our program of record has the SDB I coming in, in the end of Block 3F, which is in the 2017 timeframe. But SDB II, which is a much more enhanced capability for that precision weapon, is planned for the first increment of our Block 4. That is approximately in the 2021–2022 timeframe.

Senator AYOTTE. I think that is an important issue as well because the SDB II provides F–35A an ability to kill multiple targets in adverse weather, which is something that, obviously, the A–10 has capability on. I hope that is taken into consideration as we look at this comparison.

Dr. GILMORE. The comparison testing will be done with mobile targets and targets in close proximity to buildings and civilian structures, in particular with mobile targets.

As I mentioned, right now, the mobile target capability of the F–35 is problematic, and how much it will be corrected as we get to Block 3F remains to be seen. SDB II in 2022 will provide a weapon that can actually follow the target.

Before that, in 2020, laser JDAM [Joint Direct Attack Munition] also may help in that regard, but the current moving target capability is limited.

Senator AYOTTE. I know my time is up, but one of the things that continues to worry me is, under the Air Force plan, the A–10s are all retired by 2022. It seems to me that these are still important questions that remain, that very much matter to our men and women on the ground.

Thank you.

Chairman MCCAIN. Senator Manchin?

Senator MANCHIN. Thank you, Mr. Chairman.

Thank all of you for your service.

General Bogdan, the GAO report recommends an approach in which new development efforts are managed as separate acquisition programs. GAO recommended this type of separate acquisition program for the F–35 Block 4 follow-on modernization efforts. However, DOD has not concurred with the GAO recommendations and

plans to include the F–35 Block 4 follow-on modernization efforts under the existing cost-plus contracts.

If DOD did not adopt GAO's recommendation, would that help eliminate cost-plus for the Block 4 phase of the program? Why would they not? I do not know why any of us do not pay attention to GAO, but why the Department of Defense does not makes no sense at all.

General BOGDAN. Sir, at a strategy level, I am going to defer to Mr. Kendall to answer that.

Senator MANCHIN. Mr. Secretary, I am sorry.

Mr. KENDALL. Senator, I think we are talking about a distinction here that may not have a difference. The label MDAP [major defense acquisition program], brings with it a lot of statutory and mandatory oversight.

Senator MANCHIN. Sure.

Mr. KENDALL. What we plan to do with Block 4 is ensure that it is accounted for separately, that we have an independent cost estimate, that we manage it very intensively, that there is full transparency and visibility into what we are doing.

Senator MANCHIN. I am saying that——

Mr. KENDALL. All the things that I think are being asked for will be supplied. But if we add to that the label of a major defense acquisition program, that is going to bring a lot of additional bureaucracy and cost. I was hoping to avoid that.

Senator MANCHIN. I agree. We do not want to put any more bureaucracy on top of you than you already have.

But then I would ask, Mr. Sullivan, why would GAO make that report, if you thought it was going to throw more bureaucracy on top of it?

Mr. SULLIVAN. We would not want to see any bureaucracy on top of that either. In fact, we did a report last year, we kind of call it our efficiency report. I know the Under Secretary is familiar with it, and agrees with a lot of it, I think.

One of the things we are also attacking when we attack these kind of accountability questions is, let's reduce some of that bureaucracy that they have to deal with if they become an MDAP.

But the reason we think it is important here is, number one, the dollars involved are such that, even according to current law, they meet the threshold for an MDAP program. The other thing is, on the F–22 program, we saw something very similar to this. When they decided to baseline new capabilities into the program, they did it under the existing program, and very quickly, a $2 billion estimate for development of those new capabilities became about $11 billion, and there was no accountability over it because it was in with the baseline program.

Senator MANCHIN. First of all, I appreciate the job the GAO does. I really do.

Mr. SULLIVAN. Thank you.

Senator MANCHIN. I have to make apologies as to why we do not take your recommendations more seriously. You must have considered the bureaucracy versus the cost, as far as the contract versus cost-plus. It had to be significant savings.

Mr. SULLIVAN. Yes. We sympathize with the desire to not have to go through so many reviews and so many offices and comments

and everything else. We did the report on that, and it was eye-opening for us to see what they have to go through. But to me, they said if they had to go to a major defense acquisition program, it would cause a year's delay in getting that development effort going. I just do not understand why that would be the case. They are doing many of the things they would be required to do under MDAP anyway.

Senator MANCHIN. Thank you. Let me go on.

Yesterday, it was announced that we are sending 250 special operations forces to Syria. I understand that it costs us approximately $1 million to $1.5 million to train one special operator, equaling to roughly $375 million for the 250.

General, you have indicated recently that the F–35 currently costs $108 million per aircraft. I know it is going to come down to $85 million, you are hoping, by 2019.

Conceptually, if we traded in 10 jets, just 10, we could increase the size of our special forces community by over 650. This is after General Milley came here and said we are about 220,000 short of end-strength ground troops. We are looking for ways to make sure that we can meet the threats that we have.

The F–35 pilot helmets alone cost $400,000. That is $10 million for 2,500.

As we look at the costs associated with F–35, and considering the current threats we are facing and how most of it is ground threats that we are facing and fighting, does it make sense to spend so much money on the F–35 while we currently depend so much more on our special ops forces around the world, since we have to make some choices?

General BOGDAN. Senator, what I will tell you is that the Department has many different kinds of choices they have to make and try to balance their requirements with the resources that they have.

I will tell you that the F–35 is a long-term investment in the defense of this Nation. Our future adversaries are not sitting still. In the next 10, 20, 30 years, we may very well need the capabilities that the F–35 will provide us to maintain our leadership in the world. I consider the F–35 as an investment in the future.

Senator MANCHIN. I appreciate that. My time is up, but I am saying we have 2,500 scheduled to be built, correct? Is that the number?

General BOGDAN. The U.S. services will build about 2,443, sir.

Senator MANCHIN. For 10 less aircraft, we could put 650 special ops people on the frontlines right now.

General BOGDAN. I believe your math is right, sir.

Senator MANCHIN. Okay. Thank you, sir.

Chairman MCCAIN. Senator Fischer?

Senator FISCHER. Dr. Gilmore, in your prepared testimony, you state that cybersecurity testing has revealed deficiencies and that full testing of the logistics operating unit and the logistics information system has not been permitted.

Can you give us an overview of the planned cybersecurity tests and whether, based on the deficiencies discovered so far, you believe the testing will be adequate?

Dr. GILMORE. If we execute the plan that my office has been working on with the joint operational test team and the program office over the next couple years, that will be a very thorough, rigorous set of cybersecurity tests. The problems that we are running into, as you mentioned, are that the program is reluctant to let us test on the live systems for fear that we might damage them, and they had not made provisions for backup if the systems went down, although they are working on that now.

Up to this point, and in the immediate future, we will have to test on surrogate systems and laboratory systems. The program office is making those available to us. That is certainly better than forgoing all testing, and we are learning from that, as was mentioned in my annual report and in my statement.

But we need to do much more than that. We need to test on live systems. We are also going to have to find a way to do some sort of cybersecurity assessment of Lockheed's information systems because ALIS is plugged into the Lockheed corporate network.

We are working through all of those issues. Over the next couple years, I expect that we will have done very adequate, rigorous, testing. But we are just at the beginning of it.

Senator FISCHER. General, how is the program office working to address these issues? The doctor mentioned some accommodations there, but there is still the need for live testing. How are you addressing all of this?

General BOGDAN. Yes, ma'am.

What I will tell you today, ALIS, our logistics information system, is operating on the DOD networks. In order for me to be able to allowed to put that ALIS system on the DOD networks, it has gone through, over the last 3 or 4 years, vigorous cybersecurity testing and certification from agencies outside the JPO [Joint Program Office], to include the NSA [National Security Agency] and DISA [Defense Information System Agency].

The idea that the ALIS system today is somehow untested is not an accurate statement. However, having said that, Dr. Gilmore is correct. I was hesitant last year to give the operational test community the authority to test end-to-end the operational system, because we did not have redundancy in part of the system. If the testing were to knock off that part of the system, I did not have a backup.

We are building that backup today. As soon as that backup is in place, we will give the operational test community full authority to test the system as it operates in the field today. That should happen before the end of the year.

Senator FISCHER. Before the end of the year?

General BOGDAN. Before the end of the year, ma'am.

Dr. GILMORE. I would like to comment, Senator, that we do cybersecurity testing as an integral part of operational testing of systems that have been through DIACAP [Department of Defense Information Assurance Certification and Accreditation Process] certifications and NSA certifications, and we get into them every time.

I am not arguing against those certifications, which are specification-based kinds of assessments. They are certainly necessary, but they are hardly sufficient.

Commercial organizations such as Microsoft have said in their advice, the advice they provide to their customers, assume that you have been penetrated and do continual red teaming, which is what we do in our operational tests.

The certifications that the general talks about are certainly necessary, but they are hardly sufficient.

Senator FISCHER. Mr. Secretary, overall, what are the lessons learned from this process? What are we applying to other acquisitions? How is cybersecurity going to be included in the requirements process? Basically, what are we doing to integrate requirements for cybersecurity into the whole acquisitions process?

Mr. KENDALL. Cybersecurity is both a ubiquitous and basically an omnipresent problem. Our guidance to the acquisition work force basically is that you have to take cybersecurity into account throughout every phase of the product, development of product lifecycle, and every aspect of it.

The Department is maturing its capabilities in this area, but I am in agreement with Dr. Gilmore on this, we still have a long way to go.

Some of our older systems in the field were not designed with cybersecurity in mind. We have to go back and assess those and take corrective action on those. All of our systems like the F–35 that are in development, we have to integrate into the design process as we go, as well as into all of our business practices.

It is a pervasive threat, and I worry particularly about loss of unclassified information, which is much easier to extract and attack. In a logistics system, that is a particular problem because you want to connect to the Internet somehow so you can order parts and so on.

We are working this problem very, very hard. It is not going to be cheap to fix it, and it is not going to be quick to fix it, but we have to do so.

Senator FISCHER. Thank you, Mr. Chairman.

Senator REED. On behalf of the chairman, Senator Cotton, please?

Senator COTTON. Thank you.

I know that Senator Donnelly asked about lessons learned from the F–35 program and what we might take forward in other programs, given that some of the challenges of this program go back to some members' high school years. I think we only got through Mr. Sullivan and Dr. Gilmore, though. I would like to hear the answer to that question from Secretary Kendall and General Bogdan.

Mr. KENDALL. I was thinking, as my colleagues were answering, I think it is a combination of things. But at the end of the day, having a successful program depends on a handful of things, but they are all incredibly difficult and complicated. It starts with reasonable requirements. Then you have to have professional management that is empowered to do its job. You have to have adequate resources. You have to have a system that basically will support people doing the right thing.

In our system, as I think others mentioned, there is a very strong bias that is sort of built into our incentive structure towards optimism. It is easier to get a program funded if it costs less. Peo-

ple want everything faster, and they want it cheaper, and they want it to be able to do more.

Most of the problems I have seen in acquisitions stem from being in a hurry and being convinced, for whatever reason, that things will be cheaper, better, faster than they will actually be or that history would indicate they would be.

My office was formed in 1986 because this problem was so pervasive. I think we have had, frankly, a mixed record of success. One of the things that I hope I have done over the last several years is to put in more realism and to structure programs with a more highly likelihood of success.

A lot of the things that we to, like F–35, are incredibly complicated and difficult. Development is inherently very risky. When you create something that has never been created before, and you do it with cutting-edge technology, that is a process that inherently has a lot of unknowns in it, no matter how much risk reduction you do ahead of time.

I think support for sound management, ensuring professionals are in place, resisting the tendency to spend the money just because it is in your budget and you are afraid you will lose it if you do not spend it, which is I think exactly what happened when we started production on the F–35, is something that has to be reinforced throughout the chain of command, starting with the Secretary of Defense.

Senator COTTON. General Bogdan?

General BOGDAN. Thank you, Senator.

I will not elaborate. The concurrency and the optimism piece are given. I will give you two other things, sir.

When you set up a large acquisition program like this, you must ensure that the risk between industry and government is balanced appropriately. If the risk is all on the government, or if the risk is all on industry, you will get bad behaviors from both sides, so it is very, very important to make sure you have the incentive structures right and the risk balanced appropriately between the government and industry. We did not get that right at the early part of the F–35 program.

Mr. Kendall, under his leadership, I have been trying to do that for a number of years now, and it has proven to be helpful.

The second thing I would tell you that people do not talk about much is leadership continuity. If you have a very large program and very complex, like the F–35, it will do you no good to put leaders in place that are there for only 2 or 3 years. It takes them a year just to understand what is going on.

I would tell you our bigger acquisition programs need stable leadership at the top for many, many years to help.

Senator COTTON. Are you talking about uniformed leadership or civilian leadership?

General BOGDAN. Either one, sir. I believe government civilians and military personnel are both very capable acquisition leaders. You just have to leave them there in place for enough time to make a difference.

Senator COTTON. To the extent it is uniformed leadership, is that an acquisition challenge or is that a personnel challenge?

General BOGDAN. It is both, sir. It is absolutely both. How do you provide the incentives for a military person to continue moving up in rank if you leave him in a job for 5 or 6 years? But that is sometimes what is necessary for very big, complex acquisition programs.

Senator COTTON. I have heard from some of our partners overseas, and I do not mean just partners in the Joint Strike Fighter, but our security partners generally, when talking about acquiring certain weapons systems that, because they are small compared to the United States, they worry about being a plane with a country rather than a country with a plane.

What is the risk that some of the partners in this program face in terms of the cost of this aircraft and the ability to acquire the number of aircraft needed to contribute meaningfully to the program? How many Joint Strike Fighters need a country acquire to have a meaningful contribution to their defense?

General BOGDAN. That is an interesting question, Senator. I think it really goes to what each country cares about in terms of its resources and what they care to defend.

What I will tell you is that even our smallest nations on the F–35 program are looking at least two squadrons of F–35s. The idea that the partnership will be working together to sustain, maintain, and train the airplanes is a huge deal for them, because otherwise they could not afford a fifth-generation capability like they are today.

Senator COTTON. Thank you.

Senator REED. On behalf of the chairman, Senator Rounds?

Senator ROUNDS. Thank you, sir.

Dr. Gilmore, I am concerned by your testimony that the Marine Corps found they were not able to achieve aircraft repair capabilities at the unit or intermediate levels that would support expeditionary warfare. Can you expand on this and give your assessment as to whether ALIS, or the Autonomic Logistics Information System, is mature enough to support the sustained operations with a land- or ship-based forward-deployed squadron of F–35s at this time?

Dr. GILMORE. At this time, it is not sufficiently mature. There are a number of improvements that are planned, as the program moves forward to what is called ALIS 3.0, the fully capable version that is meant to be available for operational testing and full operational capability. If those improvements are realized, they will address a number of the issues that are mentioned in my testimony.

But currently, there are immaturities in the system. There are lots of time-consuming workarounds that are required in order to keep aircraft flying. There is a heavy reliance on having contractors present.

When we move forward to ALIS 3.0, the plan is to fix many of those problems. There is also a concern that I think General Bogdan alluded to when he was talking about tires that there is still too much reliance on sending parts back rather than repairing them closer to the frontlines.

But again, the program is working on those issues, so we will see how well ALIS 3.0 does when we get to operational testing. My estimate will be in 2018.

Senator ROUNDS. Lieutenant General Bogdan, can you comment on Dr. Gilmore's assertion that with the current number of aircraft planned for testing use, an 80 percent aircraft availability rate is needed to efficiently accomplish the integrated operational test and evaluation on schedule. What would you assess is the current aircraft availability rate? Does the JPO current projections estimate that the aircraft availability rate will be up to 80 percent by the time that IOT&E is scheduled to start? It seems as though right now you are not making that, and yet you are going to have more challenges between now and then to meet that.

How are we going to meet the testing guidelines that are laid out in order to meet the deadlines that you have laid out? It does not appear as though it is possible. Can you comment on that and give us your thoughts, please?

General BOGDAN. Yes, sir. I am not quite sure where the 80 percent comes from.

Senator ROUNDS. Well, in order to have the number of aircraft, just for the number of hours and number of tests you have to do, you have to have 80 percent of them operational. You have not done that yet.

General BOGDAN. To finish IOT&E in a year, you are correct, sir. I do not believe we will, by the time IOT&E starts, get anywhere near 80 percent.

Today, the fleet is hovering around 60 percent aircraft availability. The best we have seen so far are the U.S. Air Force airplanes at Hill Air Force Base. When they deployed to Mountain Home this winter, they achieved about a 72 percent aircraft availability rate.

What we have seen is our newer airplanes are doing much better. But I will tell you it is very unlikely that we will get to 80 percent. What that means is IOT&E may take longer than we anticipated. That would be the major result of that.

Senator ROUNDS. We talked a little bit, and I am going to follow up on Senator Ayotte's question a little bit, considering the A–10. As I look back to the information that has been provided for us, if you compare the two aircraft today, the A–10 time on-station is an hour to 1.5 hours; F–35B, and this is from what I can see the planned operational capabilities, of 25 minutes to 40 minutes on-station. With weapons, the A–10, 4 air-to-surface weapons; F–35B under the 2B software, 2 air-to-surface weapons, under the 3F, 6 air-to-surface weapons. The fuel burn under the F–35 A and B, 10 percent to 20 percent than F–16, 50 percent to 70 percent higher than A–10, which would suggest that we are also going to need additional capabilities just to service them close by those areas.

On the gun itself, the F–35, and this is the way it was designed in the first place, apparently, the F–35, apparently, was not designed with a gun in mind, a lightweight 25 mm cannon, 402 rounds total, or about a four-second burst; A–10, a 30 mm cannon, 1,150 total rounds, 17 seconds, and an A–10 round is double the weight of that carried by the F–35.

Clearly, when we talk about having a similar mission, we are talking about doing the job in completely different ways. Would that be a fair assessment?

Dr. Gilmore?

Dr. GILMORE. Yes, the F–35, when you talk about close-air support, it will do it much differently than the A–10. We are going to do those comparison tests, the ability to perform CAS, between the A–10 and the F–35 as an integral part of operational testing.

We are not going to say that that F–35 has to perform CAS the same way the A–10 does. We are going to let the F–35 pilots take advantage of the systems on that aircraft, deal with some of the limitations you mentioned as well as they can, and see how well the missions are carried out in terms of the ability to strike targets in a timely manner, and accurately, and then report on that.

There are numerous arguments about how well each aircraft will do under different circumstances and different threats. Clearly, the F–35 should have an advantage in higher threat environments than the A–10 does. The comparison testing and our report will illuminate all of that.

Senator ROUNDS. Mr. Chair, I am out of time, but Secretary Kendall looks like he wants to respond. I think, in fairness, we ought to give him an opportunity.

Mr. KENDALL. Thank you, Mr. Chairman.

I am a huge proponent and fan of the A–10. I am an Army officer. It was purposely designed to be a close-air support aircraft, and it was a very good design for that purpose. But if you estimate time to do air-to-air, it is hopeless. The F–35 is designed as an aircraft that can do a variety of missions, air dominance, strike, and close-air support.

It does close-air support differently. It does not have the features that you mentioned. Those are all real world numbers that I think you gave. But what is different now than the time the A–10 was conceived is the use of precision munitions and the ability of a wide variety of aircraft to put a munition like a small-diameter bomb exactly where they want it to go.

The Air Force today does close-air support with B–1 bombers, for example, something that traditionally would not have been possible. Times have changed.

If we could afford it, I think everybody would like to keep the A–10 in the inventory because it is such a good special purpose aircraft for that one mission. But given the constraints we have on both the size of our force structure and the financial resources that we have, maintaining a one-mission aircraft in the Air Force was not something that could fit into the balance that we were trying to achieve.

Senator ROUNDS. Thank you.

Thank you, Mr. Chairman.

Senator REED. On behalf of Chairman McCain, Senator Lee, please?

Senator LEE. Thank you, Mr. Chairman, for calling this hearing.

Thanks to all of the witnesses for your testimony today.

The Utah delegation has had the opportunity to witness firsthand the rollout of the F–35 in the Air Force as the 388th and the 419th fighter wings at Hill Air Force Base in Ogden, Utah, prepare to reach initial operating capacity, or IOC, later this year.

We have also been able to see the development of the logistics and maintenance functions of the F–35A at the Ogden Air Logistics Complex, which has been so effective that they have been called to

assist both the Marine Corps and the Navy in meeting the modernization goals for their respective variants of the F–35, and we are very proud of that.

The men and women who are working to train on, test, and to keep these jets in the air are models of American ingenuity and hard work and patriotism and dedication at its very best. I hope this Congress will provide them with the resources that they very much need in order to continue succeeding in their mission.

General Bogdan, one of the main obstacles for the F–35A reaching its IOC goals this year, of course, involves the continued development of ALIS, which is, of course, used to manage the logistics and supply chain for maintaining the F–35, not just now during the rollout, but throughout its lifetime.

Can you tell me how is the Joint Program Office working with industry to ensure this capability is functional and fully integrated into this weapons platform in a timely and effective manner?

General BOGDAN. Thank you, Senator.

The ALIS system right now that the Air Force needs at Hill Air Force Base is on track to be about 60 days later than we planned. The biggest issue we have right now is getting the maintenance and supply chain and configuration management of the engine, the F135, integrated into the ALIS system. That has proven to be more difficult than we had anticipated, because it requires both Lockheed Martin and Pratt & Whitney's backend ERP [enterprise resource planning] systems, to talk to each other and to connect with ALIS.

We have worked with Lockheed Martin across the whole company as well as some of their teammates, and we have brought in some software experts from within DOD to try over the last few months to figure out where those difficulties lie. The good news there is we understand where the difficulties are. Now we just have to go and execute.

Like I said, I think we are probably going to be about two months late getting that done, but I think we, from a technical standpoint, will be able to get it done.

Senator LEE. Okay, that is good to know. It is good anytime you can at least contain a delay and look forward and conclude that you have a known quantity.

Because of budget reductions and the inability to retire the A–10, the Air Force is concerned about a potential shortfall of experienced uniform maintainers to transition to F–35 units and keep those weapons safe and keep them functional.

General Bogdan, has the Air Force been able to resolve this problem in the short term? What long-term complications do you see that might still exist for ensuring that a generation of maintainers is being trained to keep pace with the process of integrating the F–35 into the Air Force?

General BOGDAN. Yes, sir.

In the short term, when the Air Force was faced last year with a shortage of maintainers for their IOC capability at Hill Air Force Base, they asked the program office to populate an entire squadron at Luke Air Force Base with contractor logistics support personnel. We did that. The 62nd squadron at Luke Air Force Base today on the flight line is maintained with approximately 110 contractors as

opposed to blue suit maintainers. That gave the Air Force the flexibility to take those maintainers that would have been at Luke Air Force Base and transfer them to Hill Air Force Base for IOC.

That is just a Band-Aid, though, and that is a short-term fix. In the long term, I believe the Air Force needs the ability to move maintainers around for the growing fleet of F–35s. We are committed to working with them to increase the throughput of maintainers through the schoolhouse and to work with our partners and to work with the Guard and Reserve in the Air Force who can provide some of that manpower.

I will defer to the Air Force on those solutions, though, sir.

Senator LEE. Let me ask you one more question as my time is expiring.

Can you tell me, did the Department of Defense originally intend the F–35 to be a direct replacement for the A–10 in close-air support missions? Or was it designed to work with other Air Force and joint force systems to fulfill the Department's needs as far as close-air support goes? What is your assessment of how the services will be able to work together to meet close-air support needs through integrated and joint operations?

General BOGDAN. Sir, what I will tell you is, over time, the evolution of the way we conduct close-air support in the Department of Defense has evolved. It is no longer a single airplane out there talking to a ground controller and dropping a single weapon. It is a much more integrated fight. It is much more reliant on multi-platforms and multiple communication systems with both the ground and the air.

Given that, the F–35 in the future, today and in the future, will have the capabilities to seamlessly integrate into that network to perform close-air support.

Senator LEE. Thank you very much.

Thank you, Mr. Chairman.

Senator REED. Thank you, Senator Lee.

The chairman is on his way back from the second vote. I am also told that Senator Blumenthal and Senator King are coming for questioning.

But at this point, if I may, on behalf of the chairman, take a short recess, perhaps for just a few moments until the chairman returns. We will stand in recess until the chairman returns. Thank you.

[Recess.]

Senator REED. Let me once again, on behalf of Chairman McCain, call the hearing to order and, at this time, recognize Senator King for his questions.

Senator King?

Senator KING. Mr. Gilmore, one of the concerns that I have, and it has been touched on in this hearing, is the length of time this platform is expected to serve, roughly 20 years from now, 30-plus years from initial inception. I think back to any product I may have bought in 2004. I was originally thinking of Senator Graham's flip phone. I would not want to be flying that in 2040.

Are we building upgradability into this airplane so that it can keep up with the times? In other words, is it designed with that in mind?

Dr. GILMORE. That question is to me, Senator?

Senator KING. Yes, sir.

Dr. GILMORE. Well, I will defer the details to General Bogdan. This aircraft is going to be much more upgradable than the F–22s was. But having said that, we have already identified the need for an upgrade from the now being installed Technical Refresh two processor, which provides additional capability relative to the processors that have been in the aircraft to this point. We have identified a need for an upgrade to that, a Technical Refresh 3 processor.

In this program, moving from one processor to another is not nearly as arduous a problem as in the F–22, where there was a lot of software that was developed with features that were tied very specifically to the processors in order to maximize capability. But it is still not a trivial matter, as has been demonstrated recently by the stability problems that we now hope have been resolved with the Technical Refresh two processor.

Upgradability is being built in, but that does not mean it is going to be trivial to execute.

Senator KING. General Bogdan? Quickly, because I have several of the questions. But what is your thought, are we going to be able to upgrade this airplane so that is not going to be obsolete in 2025?

General BOGDAN. I believe we will, sir. There are a few points I will make.

One is, when we do replace the next version of the computer or the brains in the airplane, we are requiring open standards and modular open system architecture, which will allow for the incorporation of new sensors and new capabilities much easier.

Second, when we first originally designed the airplane, we knew many of our partners and FMS customers would want to put unique weapons on the airplane, so we have created a system that will allow us to integrate multiple kinds of weapons on the airplane, not trivial, but in an easier way.

From both those perspectives, I believe the airplane is adaptable and growable.

The third is, many of the capabilities inherent in the airplane today that make it special are software-based. Therefore, in the future, as new capabilities come on, like electronic warfare and electronic attack, we will be able to upgrade the software in an easier way than you would the hardware.

Senator KING. I think this has to be an important part of our whole acquisition process as we are buying 40-year assets, the *Ohio*-class submarine, the B–21, on and on.

Secretary Kendall, was the attempt at jointness in this project a mistake in retrospect?

Mr. KENDALL. It is a good question, Senator. I think the honest answer is I am not sure.

I was present at the inception of F–35. It started out as a technology program that was instituted by one of my predecessors when I was on the staff.

We are now thinking about the follow-on aircraft for the Navy and the Air Force. I do not think we are going to repeat this. First of all, I think the design parameters are going to be quite different for the follow-on aircraft for the two services. We did get some benefit from commonality, but there is very little commonality in the

structure. I think we still could get some of those benefits without having to have a single program.

Senator KING. You could get benefits in terms of?

Mr. KENDALL. Common avionics, common sensor systems, and so on. I think those still could be achieved without having a common program, necessarily.

I think you would have to make that decision kind of as your plans for modernization and acquisition became more real and material as to whether or not it paid off or not. I think it is astonishing to me, frankly, that we have been able to keep this program together for so long, keep the three services fully committed, and keep all of our international partners fully committed. We have two that are on the fence right now. But at this stage of the game, everybody is still in.

Pulling all that off is not a small achievement. That is very hard to do. I think we have to think very carefully about that. The more complexity you have in a program, the more risk you have. I do not know that the savings are necessarily worth that complexity and the risk that goes with it.

Senator KING. Thank you.

Thank you, Mr. Chairman.

Senator MCCAIN. Senator Blumenthal?

Senator BLUMENTHAL. Thanks, Mr. Chairman.

I thank you all for your being here today and for your insights on this very challenging program. It is as complex as it is critical to our national defense, and we should expect on this committee, and the American public should anticipate, that a weapons platform of this complexity will also have bumps in the road in its development and research. I take it none of you would disagree with that basic preposition.

Despite that bumpy road, at some point, the F–35 as a whole has already made significant advancements in a number of areas. In particular, the F135 program provides truly a fifth generational power capability to the fleet.

Every low-rate initial production LRIP [Low Rate Initial Production] contract, as I understand it, for the F135 has been on or below cost. The recent announcement of the LRIP lots 9 and 10 will bring the price down another 3.4 percent from the LRIP 8.

To date, the F135 conventional takeoff and landing engine cost has been reduced by 47 percent since the initial flight test engines. The STOVL [Short Take Off and Vertical Landing] engine cost has been reduced by 34 percent in the same time period. These are real achievements.

In addition, Pratt & Whitney has already identified technology improvement options that will increase the thrust, durability, and fuel efficiency that could ultimately save billions of dollars for this program.

The F135 is meeting the key fiscal year 2020 milestones—again, my understanding—for mission capability and engine reliability.

Are those facts accurately stated, so far as the panel knows?

General BOGDAN. Sir, they are very accurate.

Senator BLUMENTHAL. Thank you.

All that said, I know that questions have been raised, General Bogdan, about the F135 performance. I take it from your testimony

that quality has not been an issue, so far as the Pratt & Whitney supplier performance has been concerned?

General BOGDAN. Sir, 2 or 3 years ago, I would have told you that I was worried about that. I will tell you that Pratt & Whitney has done a good job of standing up a quality organization within Pratt & Whitney Military Engines that has dug down deep into their supply chain and helped improve that significantly.

Senator BLUMENTHAL. Thank you.

Their supply chain, a lot of it is based in Connecticut. I can tell you from my experience in Connecticut that our suppliers and manufacturers have recognized the challenge we face for this century, literally. This weapons platform will be critical to our national defense throughout the century.

We can look back and draw lessons, and we should, from the challenges that caused that improvement to take place, and maybe even the overall conceptual framework, as you suggested, Secretary Kendall. Should there have been more individualization of the platform for different services? But I can well recall that the conventional wisdom not so long ago was that the services ought to get together and collaborate and buy a single fighter. That was the wisdom du jour of contracting in its day, and now maybe lessons point in a different direction.

I hope that we will learn lessons from this procurement experience, but I think there has to be a recognition that this weapons platform will do things that no fighter engine or platform has done in the past.

Would you agree, Dr. Gilmore?

Dr. GILMORE. The investment ranking is large, and the need that we have is large to deal with the threats that currently exist. If the F–35 does not succeed, we will be in a pickle.

Senator BLUMENTHAL. We have a common national interest in making sure it succeeds?

Dr. GILMORE. Yes.

Senator BLUMENTHAL. Would you agree, Mr. Sullivan?

Mr. SULLIVAN. Yes, I would. We definitely need to have this moving forward. This is the fifth generation.

Senator BLUMENTHAL. Thank you.

Thank you, Mr. Chairman.

Chairman MCCAIN. Let me just say, in summary, it has been a scandal and the cost overruns have been disgraceful. This committee, in our authorization responsibilities, will take whatever actions we can to prevent a reoccurrence. It should not take 15 years and still not have an aircraft IOC, and with cost overrun after cost overrun.

I guess my question, finally, Mr. Sullivan, do you think that we have learned the lessons and taken sufficient measures to prevent a reoccurrence? Or do we need to do some more?

Mr. SULLIVAN. I think there is always room to do more. I do not think we have learned all the lessons yet. But I would say that if you go back 5 or 6 years, or go back to, say, 2010, we are not seeing as many F–35s or these big programs with requirements that are not achievable. I think we are learning some lessons that way.

Some of that could be because of budget constraints. Some of it is from the work that Congress has done. Frankly, I think the De-

partment has done a good job of trying to implement and drive down into the culture some better practices that talk about better buying power initiatives.

We have a long way to go, though. I mean, there is still way too much cost growth on these programs. We are not using enough looking at requirements in an incremental way, using open systems, as Senator King was talking about. There are a lot of things that we can to do create more efficiencies.

Senator MCCAIN. Dr. Gilmore?

Dr. GILMORE. I think Block 4 will be a good test of whether we have learned lessons. As mentioned in my written statement, I see a number of unrealistic assumptions with regard to Block 4. I hope, as Secretary Kendall and General Bogdan take a look at how to structure that program, that they take a look at those issues. That will be a good test.

Senator MCCAIN. Secretary Kendall and General Bogdan, I hope you will pay attention to Dr. Gilmore's words, particularly given his responsibilities to the Department of Defense as well as to the Congress.

I thank the witnesses. I believe that most of the takeaway from this is that we are making progress, that we have challenges that lie ahead, but there have been some significant improvements, as opposed to some years ago.

I thank the witnesses for their hard work.

This hearing is adjourned.

[Whereupon, at 11:54 a.m., the hearing was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

F–35 VARIANT COMMONALITY

1. Senator MCCAIN. General Bogdan, how does the lack of commonality between the three variants complicate the management of the F–35 program?

General BOGDAN. In some ways the F–35 variants are quite common (cockpit configuration, software, pilot-vehicle displays, helmet) but in other areas—mostly systems design (fuels, weapons bay) and structurally (bulkheads, wings, tails, lift-fan-B-model)—they are different. Despite the differences in the airframes, the manufacturing processes and tooling are common. Learning curve efficiencies and lessons learned from production processes will benefit all three aircraft variants.

The variant differences do cause some complexities, including the need to clear each aircraft variants' flight envelope separately, conduct structural/durability testing on all three variants separately, and obtain separate airworthiness. However, there are many areas where commonality has reduced complexity, saved money, and limited the work needed to field combat capability. These include mission systems software, development and testing, weapons clearances and accuracy testing, ejection seat development and testing, a significant portion of maintenance technical data, simulator development and manufacturing, and most pilot and maintenance training curriculum. Because these are common across the three variants, they have reduced complexity, cost, and work.

From an organizational perspective, the F–35 Joint Program Office (JPO) is a single organization focused on the overall program—regardless of U.S. Service or International Partner. The JPO utilizes a single contracting, financial management, production management, security, engineering and legal office across all three variants. Our unified effort benefits from economies of scale through its contracts negotiations, test force, and global sustainment strategy.

2. Senator MCCAIN. General Bogdan, the original requirements for the F–35 called for 70–90 percent commonality between the three variants. You were recently quoted as saying in reality, they are 20–25 percent common, mainly in their cockpits. In 2013, you were quoted as saying the F–35 program is really 3 aircraft pro-

grams running in parallel. Given the lack of commonality and the different requirements, priorities, and desires of the various customers, what benefits do you see as worthy enough to continue this program as a joint effort?

General BOGDAN. From an organizational perspective, the F–35 Joint Program Office (JPO) is a single organization focused on the overall program-regardless of US Service or International Partner. The JPO consolidates many actions including contracting, financial management, production management, security, engineering, testing and legal advice across all three variants. By consolidating these necessary program management functions, we gain the benefit of economies of scale, which makes the program more affordable and minimizes the amount of Government workload necessary to run the program. Continuing the program as a joint program will continue to benefit the US Services, International Partners and Foreign Military Sales customers in the areas of airframe and engine production contracts, spares procurement and supply, depot activities, and the Follow-on Modernization (FoM) program. We also believe it is in the tax payers' best interest to have one Government office speaking for and interacting with the F–35's airframe and engine contractors.

Separating the Program may allow industry to uniquely charge the United States Air Force and United States Navy for work industry only does once. It may also cause significant variations in the manner in which global sustainment is delivered, significantly increasing the cost and complexity of the program.

3. Senator MCCAIN. Dr. Gilmore, how does the lack of commonality between the variants effect the operational testing of the F–35? Is the test community conducting, in effect, three separate testing plans?

Dr. GILMORE. There is one operational test plan, but it is designed to have enough trials to be able to detect differences in operational effectiveness among the three F–35 variants. Differences among the variants in weapons carriage and loadouts, flight envelope (maximum "g" available and maximum airspeed) and fuel loads may cause dissimilarities in combat performance among the variants. The test design uses statistical techniques to ensure adequate coverage of all operational missions (for example, suppression/destruction of enemy air defenses or defensive counter-air) and the operational mission environment (for example, day vs. night or threat severity) for all F–35 variants without resorting to three separate tests of each variant for each mission and environment. The test designs were developed so that differences in performance between the variants could be detected and measured, independently (or nearly independently) of other factors in the operational space. Although each trial will be flown by a specific variant—i.e., "mixed" formations of multiple variants are not planned—there will be enough trials flown by each variant to ensure differences in combat effectiveness among the variants will be detected. While the test we are planning contains fewer trials than would three separate test plans for each variant, the test does contain more trials than would be required if all three variants were completely common and there was no expectation that performance differences among the variants existed.

THE JOINT PROGRAM OFFICE

4. Senator MCCAIN. The process the Joint Program Office has in place for determining what capability upgrades will be in which block increment, and when these capabilities are developed and procured, seems to be generally unsatisfying to all the services, and also the international partners. While the F–35 program has been filled with compromises, as many joint programs are, why would we continue in the future using a joint construct when there may be other alternative management structures to provide an F–35 customer with a particular capability when they actually need it?

Secretary KENDALL. Actually, I believe the U.S. Services and International Partners are generally satisfied with the process for determining capabilities and prioritizing and gating those capabilities into block increments. The majority of the capabilities planned for the initial block of Follow-on Modernization (FoM) are common capabilities that are agreed upon by the F–35 enterprise as requirements needed by all variants and all partners. In addition, there are multiple mandated capabilities that require integration to meet DOD requirements. The incorporation of unique Service and Partner capabilities is part of the process that has been vetted and agreed upon by the F–35 enterprise. Unique weapons and specific capabilities required by individual customers are being planned for integration in a process that factors in technology levels, required capacity, and need dates, much like the rest of the capabilities. Naturally, there are compromises involved, but not unlike any other single Service program that must factor in competing requirements. The FoM strategy is being structured with flexibility and agility in order to be able to meet

the emergent requirements that will continue to come up in the future. In the case of the F–35, this joint and cooperative program will provide the United States and many of our allies with a 5th-generation strike fighter able to communicate, interoperate, and fight seamlessly across the spectrum of coalition warfare.

5. Senator MCCAIN. General Bogdan, how many people work for the Joint Program Office, including military, government civilians, and Full Time Equivalent (FTE) contractors?

General BOGDAN. At the time of the F–35 Lightning II hearing before the Senate Armed Services Committee on April 26, 2016, the F–35 Joint Program Office's records showed that there are over 2,500 professional men and women who go to work every day in support of the F–35 JPO and develop, test, procure, and support this world-class 5th-generation fighter for the U.S. Services, eight International Partners, and three Foreign Military Sales customers.

The table below provides a breakdown of all F–35 JPO and Integrated Test Force (ITF) personnel, including military and Government civilians. Personnel are over multiple locations, including Arlington, Virginia, China Lake, California, Edwards Air Force Base (AFB), California, Eglin AFB, Florida, Fort Worth, Texas, Hill AFB, Utah, Jacksonville, Florida, Lakehurst, New Jersey, Marine Corps Air Station (MCAS) Beaufort, South Carolina, and MCAS Cherry Point, North Carolina.

FTEs	Authorized	Assigned	% Filled
USAF/USN/USMC Civilians	1297	1040	80%
USAF/USN/USMC Military	185	153	83%
JPO Support Contractors	518	515	99%
International Partner Personnel	166	166	100%
ITF Civilians	435	381	88%
ITF Military	203	180	89%
ITF Support Contractors	135	132	98%
TOTAL JPO MANPOWER	2939	2567	87%

It is important to note that the ITF personnel are the testers (693 people), who are not considered part of the Program Office other than for cost and budget purposes. Any comparison of the size of the F–35 JPO to other Navy or Air Force program offices should be made using the sum of Air Force/Navy/Marine Corps civilians, military, and support contractors (1708), not including International Partners or ITF personnel because that is the manner in which all other program offices in the Navy and Air Force measure and report their "head count," or size. We included the International Partners and ITF personnel to be totally transparent.

6. Senator MCCAIN. General Bogdan, do you have responsibility to provide funding for the F–35? Who does?

General BOGDAN. The three United States Services (Air Force, Marine Corps, and Navy), eight International Partners, and three Foreign Military Sales (FMS) customers are responsible for providing the funding for the F–35 Program. As the Program Executive Officer (PEO), I manage and oversee the entire F–35 Program, to include the funds provided by the U.S. Services, Partner Nations, and FMS customers. The PEO's job is to deliver an affordable, reliable, and sustainable 5th-generation fighter to our Warfighters, International Partners, and FMS customers who are participating in the program.

7. Senator MCCAIN. General Bogdan, do you have responsibility for the requirements of the F–35? Who does?

General BOGDAN. The U.S. Services and International Partners are responsible for establishing F–35 requirements through a disciplined governance structure. Overall, the Program Executive Officer (PEO) is responsible for meeting those requirements by delivering an affordable, reliable, and sustainable 5th-generation weapon system to our Warfighters, International Partners, and Foreign Military Sales (FMS) customers.

8. Senator MCCAIN. Secretary Kendall, in your estimation, does the current management structure of the F–35 program optimally align responsibility and accountability in providing the services the capability and capacity they require, when they require it, at an acceptable cost? Why or why not?

Secretary KENDALL. Yes I do. The F–35 Program Charter (Revision 2) was approved by the Deputy Secretary of Defense in March 2015. It was co-signed by the Secretaries of the Navy and Air Force. The purpose of the F–35 Charter is to docu-

ment the business arrangements, management structure, funding guidelines, personnel support, and lead Service responsibilities. The Program Charter is an example of the level of attention and oversight afforded to the F–35 Program. The current management structure, which is codified in the F–35 Charter, provides optimal responsibility and accountability for a very complex Joint and Cooperative Program. U.S. Service requirements and capability are reviewed extensively and thoroughly as part of the DOD Joint Capabilities Integration Development System. The Joint Staff reviews the program semi-annually and, with Service input and feedback, provides U.S. guidance and direction for the F–35 Enterprise requirements review and decision bodies.

9. Senator MCCAIN. Secretary Kendall, do you believe that with the enhanced authorities for the Service chiefs provided in the fiscal year 2016 NDAA, the Services could satisfactorily execute effective, but separate, F–35 follow-on modernization programs for their respective variants, as well as act as lead organizations for the international partners that also fly those variants?

Secretary KENDALL. I do not. The F–35 Program is in the process of completing the System Development and Demonstration phase; preparing for Initial Operational Test and Evaluation; transitioning from single-year, production-based logistics and sustainment contracts to a longer-term, Global Sustainment Strategy (GSS) and performance-based logistics contracts; and stepping off on the Follow-on Modernization (FoM) effort that will keep the F–35 viable and pacing the evolving threat for the next decade and beyond. The last thing that the F–35 enterprise should do right now is to break up the F–35 Joint Program Office (JPO) into separate, Service-led, variant-based entities. The FoM effort is largely a common-requirements effort. In other words, the U.S. Services and Partners have voted and prioritized common, DOD-mandated requirements and capabilities for integration across all three variants. That common effort is best managed and executed under the current program and management structure. While there are Service and Partner-unique weapons and capabilities planned for the initial block of FoM, these will also benefit from the synergies gained from experience, planning, and management structure resident in the current JPO arrangement. A transition to individual, Service-led F–35 variant program offices may be advantageous at some time in the future; however, now is not that time. The Services and our International Partners are actively and aggressively involved in the management, oversight, and execution of the F–35 JPO, and retaining the current structure for the foreseeable future is the most prudent approach.

SYSTEM DEVELOPMENT AND DEMONSTRATION (SDD) PHASE

10. Senator MCCAIN. General Bogdan, when do you project the System Development and Demonstration (SDD) phase to complete?

General BOGDAN. The testing portion of the Systems Development and Demonstration (SDD) phase will be completed by the fall of 2017. Release to the field of full 3F capability for the A model should occur in the late 2017 timeframe, with the B and C model's capabilities release in the early 2018 timeframe. This added time between the end of testing and release of capability accounts for the time necessary for the engineering and airworthiness communities to analyze the test data and certify the safety and 3F capabilities for operational use. The administrative closeout of the actual SDD contract will require some time beyond 2018, but all development and testing will be completed during this closeout period.

11. Senator MCCAIN. Dr. Gilmore, when do you project the System Development and Demonstration (SDD) phase to complete?

Dr. GILMORE. SDD will likely not be complete before March 2018, at the earliest. This assessment is based on the following assumptions:

- Block 3i mission systems testing is complete and will not need to restart
- Block 3i stability fixes have been successfully transferred to the Block 3F software
- Block 3F mission systems has restarted in earnest with all SDD aircraft
- The balance of approximately 4,200 Block 3F mission systems baseline test points (the number as of the beginning of May) will be completed by the test teams, without significant deletions by the program
- No additional discoveries which cause significant delays or unplanned software releases (beyond those currently planned) occur in Block 3F flight testing
- All planned weapon delivery accuracy (WDA) events—which includes 25 events with air-to-air missiles or bombs and 19 WDA events supporting gun tests with the embedded gun in the F–35A and with the podded gun for the F–35B and

F–35C—are completed before the end of SDD. As of the end of April, none of these weapons delivery accuracy events had been completed and will likely not begin before August 2016, after a version of software is released to flight test that will support the start the of the WDA events. The latest Program Office schedule shows that the missile and bomb events are planned to start in June and be complete by the end of November 2016, a schedule that I consider to be unrealistic. The program has prioritized 16 of the 25 bomb and missile events to be completed to support flight certification of weapons releases for Block 3F; however, all events, including the WDAs with the gun, must be completed to support end-to-end fire control characterization for all required weapons prior to the start of IOT&E. The program's ability to complete these events before March 2018 will depend on efficiencies in completing WDA events and data analyses that has not been seen in the past (i.e., during the Block 2B and Block 3i WDA events) and the maturity of mission systems software to support the find-fix-track-target-engage-assess kill chain for each of these events

12. Senator McCain. General Bogdan, will you need additional funding beyond fiscal year 2017 to complete System Development and Demonstration (SDD)?

General Bogdan. The fiscal year 2017 President's Budget includes the needed System Development and Demonstration (SDD) funding requirements beyond fiscal year 2017 to complete SDD.

INITIAL OPERATIONAL TEST & EVALUATION (IOT&E)

13. Senator McCain. Dr. Gilmore, can you give us some perspective on what the historical rate of discrepancy discovery during IOT&E is for weapons platforms, and what that might look like for a system as complex as the F–35?

Dr. Gilmore. Operational testing is designed to evaluate the mission capability of a system by exposing the system to the demands of an operational environment expected during combat. As such, IOT&E often leads to the discovery of problems not identified during development, or at least issues that were not fully characterized. Since 2011, I have documented in my annual reports many problems that were either identified during IOT&E, or were known prior to IOT&E but not addressed during development, of systems under DOT&E oversight. In 2014, DOT&E began to quantify the rates of problem discovery in all operational tests. In 2014 and 2015, approximately 40 percent of operational tests discovered new problems significant enough to negatively affect my assessment of the system, i.e., they contributed to my decision to call a system wholly or partially not effective, not suitable, or not survivable. If we add problems that were known but were not addressed during development, the percentage of operational tests in which significant problems are encountered climbs to 70 percent over the same period.

For all systems, but for highly complex systems in particular, it is important for the program office to address known deficiencies during development, before commencing operational testing. In spite of a concerted effort by the F–22 program office to address deficiencies before IOT&E in 2004, testers identified 351 deficiencies in system or subsystem performance during IOT&E. As stated in my testimony, the F–35 program had 1,165 open, documented deficiencies as of the end of March 2016, 151 of which were Category 1—defined as deficiencies which may cause death, severe injury, or severe illness; may cause loss of or major damage to a weapon system; critically restrict the combat readiness capabilities of the using organization; or result in a production line stoppage. Of these 151 Category 1 deficiencies, 128 were associated with the air vehicle and the remaining 23 were associated with the Autonomic Logistics Information System (ALIS) or support equipment. Furthermore, 95 of the 151 open Category 1 deficiencies were categorized as "high severity" by the program or Services. The program continues to identify deficiencies at a rate of approximately 20 per month. During IOT&E, which will be the most realistic and stressing testing F–35 will undergo, the rate of discovery of deficiencies is likely to be greater than the current rate of 20 per month.

New problems discovered in operational testing vary, in both type and severity, but tend to cluster into several categories. New suitability problems were typically caused by low reliability once placed in an operational environment, training and documentation issues, or usability problems that prevented operators from successfully employing a system in combat. New effectiveness issues primarily resulted from unexpectedly poor performance in a realistic operational environment or against a stressing threat. Survivability issues uncovered in operational testing in fiscal year 2015 were predominantly cybersecurity vulnerabilities. I expect the IOT&E for the F–35 will discover new problems in each of these categories, while

also exposing the operational implications of known deficiencies in performance not corrected prior to the test.

14. Senator MCCAIN. General Bogdan, what is the program office's plan to ensure a successful start to IOT&E, including the plan to ensure sufficient test aircraft and appropriate simulators are supplied? How much is dependent on the services accepting and executing on your plan?

General BOGDAN. The F–35 Joint Program Office (JPO) has a plan in place to ensure delivery of sufficient test aircraft and simulators to begin Initial Operational Test and Evaluation (IOT&E). The aircraft requirement as specified in Revision 4 of the Test and Evaluation Master Plan (TEMP) called for 25 F–35s (6 instrumented aircraft from the United States Air Force, 6 instrumented aircraft from the United States Marine Corps, 6 instrumented aircraft from the United States Navy, 2 instrumented aircraft from the United Kingdom, 1 instrumented and 1 non-instrumented aircraft from the Netherlands, and 3 spare aircraft.)

Instead of using all new Low Rate Initial Production (LRIP) Lot 9 aircraft for IOT&E, the JPO worked with the JSF Operational Test Team, the Services, and International Partners to develop a course of action that reduced the number of required aircraft to 23 and modifies some earlier LRIP Lots 3, 4, and 5 aircraft to the Lot 9 configuration. This approach was fully vetted and accepted by the U.S. Services and International Partners. Additionally, the JPO worked with Lockheed Martin (LM) to give the IOT&E aircraft needing modifications priority.

For simulators, the requirement is to have a Verification Simulator (VSim) available during IOT&E. To meet this requirement, the JPO is executing a development program to deliver a tactical simulation capability, formerly known as VSim, which will support IOT&E. This program is a combined LM and U.S. Government effort and is currently referred to as VSim/Joint Simulation Environment (JSE). LM is responsible for developing the aircraft simulation software model while the JSE team is responsible for developing the simulation environment and integrating all simulation models into that environment. The current VSim/JSE schedule is projecting availability in July 2018, which will be three months late to the IOT&E need date of April 2018; however, VSim/JSE capability will still provide utility as the full simulation capability will be delivered during the IOT&E period.

The JPO anticipates all the TEMP requirements to begin IOT&E should be met by early 2018, which is about six months later than the original program plan put in place in 2013. There is an opportunity for an incremental or phased start of IOT&E earlier than 2018; however, this plan was not approved by Director, Operational Test and Evaluation.

FOLLOW-ON MODERNIZATION

15. Senator MCCAIN. General Bogdan, please explain the currently unfunded $700 million bill for the Technical Refresh #3 (TR3) processor? Why is this not included in the Follow-on Modernization budget? What other items are not included in the Follow-on Modernization budget?

General BOGDAN. The F–35 program initially projected the use of Diminishing Manufacturing Source funding, as required, to address hardware redesigns necessary for the treatment and/or replacement of multiple obsolescent parts. As threat analysis and requirements development efforts led to the identification of Follow-on Modernization (FoM) capability requirements and Block 4 content definitions, it became apparent that there were parallel and duplicative hardware changes and updates being forecast to meet both obsolescence and capability upgrade requirements. The most efficient and cost-effective solution was to consolidate hardware changes for obsolescence and Block 4 upgrades under a single comprehensive Technology Refresh #3 (TR3). The TR3 design will be competitively sourced and accomplished under the current fiscal year 2017 President's Budget. The full development, integration, and test/certification costs for TR3, following vendor down-select, are subject to POM–18 decisions to supplement the FoM budget. All other currently-defined Follow-on Modernization requirements are included in the FoM budget.

16. Senator MCCAIN. Dr. Gilmore, the requirements for the first two increments of follow-on modernization, Block 4.1 and 4.2 are due to be finalized this summer. What are the dangers of finalizing the requirements prior to completion of Initial Operational Test & Evaluation (IOT&E)?

Dr. GILMORE. There will certainly be discoveries of deficiencies during IOT&E for which the program will need to develop fixes and conduct flight testing. Finalizing the requirements for Block 4.1 and 4.2 before these deficiencies are addressed and ensuring the capabilities delivered in Block 3F allow the F–35 to be effective in com-

bat, may cause the program to underfund these fixes and "over commit" to Block 4.1 and 4.2 capabilities, resulting in unrealistic and unachievable schedules and costs for executing Block 4. The program faced similar circumstances in early 2016, when instabilities and deficiencies in Block 3i software, in what was planned to be the final release, were carried into Block 3F software development. Failing to correct these deficiencies prior to adding capability in subsequent 3F builds became problematic and the program—rightfully so—stopped flight testing of Block 3F and returned to the Block 3i development to fix instabilities and address the Air Force's "must fix" deficiencies prior to that service's declaration of initial operational capability.

17. Senator MCCAIN. General Bogdan, your most recent program update indicates the program intends to pursue the F–35 modernization contract as a Fixed Price Incentive Fee (FPIF) contract. This is a change from previous plans to pursue the contract as a sole source Cost Plus Fixed Fee (CPFF) contract. Why the change? Why does a FPIF contract offer the government the best value?

General BOGDAN. In general, a fixed price contract provides the strongest incentive for a contractor to control costs. A Fixed Price Incentive Fee (FPIF) contract allows the contractor and the Government to share in cost savings and potential cost overruns and provides focus on the areas that are important to the Government. Provisions of this contract type also allow the Government to assist in managing potential cost growth and schedule delays yet provide a ceiling, beyond which the Contractor bears total cost responsibility. This contract type also provides the necessary insight into actual costs incurred, which is necessary to demonstrate program accountability. Although we recognize that the contract type is subject to approval by the Service Acquisition Executive, the Defense Acquisition Executive, and an element of negotiations, and not pre-determined until the time of award, the JPO believes that proceeding through the acquisition planning process while pursuing a FPIF contract type will result in the necessary rigor and discipline for our requirements review process, which will help us achieve our overall program objectives for Modernization.

MANAGEMENT OF THE FOLLOW-ON MODERNIZATION PROGRAM

18. Senator MCCAIN. All witnesses, gentlemen, does the decision to manage the F–35 follow-on modernization program within the existing F–35 program adhere to best practices identified by GAO and relevant DOD policies and statutes? Why or why not?

Dr. GILMORE and Secretary KENDALL. Managing the F–35 Follow-on Modernization program within the existing F–35 program does not adhere to the "best practices" identified by the GAO; it is also not consistent with the lessons learned from executing follow-on modernization of the F–22. As stated in my written testimony, the Department's current plans for executing F–35 Follow-on Modernization incorporate numerous unrealistic assumptions including, but not limited to, an overly optimistic schedule. For example, there is a four year gap between the final version of Block 3F software in late 2016 and the planned release of Block 4.1 in late 2020, without an interim software release to fix critical deficiencies found in the remaining developmental and operational testing. Pursuing this plan will inevitably result in new Block 4 capabilities being overlaid on the unresolved Block 3F deficiencies with a result analogous to the problems encountered when the program attempted to overlay unresolved Block 2B deficiencies onto Block 3i avionics hardware, and new Block 3F capabilities onto unresolved Block 3i problems. Another concern is that the proposed modernization schedule finalizes the content of Blocks 4.1 and 4.2 in early 2016 and would award contracts to start simultaneous development of those two Blocks in 2018, well prior to completion of IOT&E and understanding the inevitable problems it will reveal. Also, the test periods and resources (test personnel and aircraft) allocated to complete Block 4 developmental and operational testing are not adequate to support the substantial and complex content planned for each increment of Block 4. Finally, the program recently identified the need for new Technical Refresh-3 processors, to provide the computational capacity needed to allow the new Block 4 capabilities to be hosted on the F–35, at a cost of $700 million that is currently unfunded. In my view, these issues demonstrate the need for the rigorous and critical oversight that would be provided by managing Block 4 as a separate program, thereby assuring the F–35 Follow-on Modernization program is executable and affordable, and that it does not repeat the substantial cost overruns and schedule slippages that have occurred during the ongoing F–35 Block 3F program.

Mr. SULLIVAN. The decision to manage the F–35 follow-on modernization program within the existing F–35 program does not adhere to acquisition best practices.

Managing the follow-on modernization program this way means that it would not have a Milestone B review-the DOD acquisition review that sets in motion oversight mechanisms including an acquisition program baseline; Nunn-McCurdy unit cost growth thresholds; and periodic reporting of the program's cost, schedule, and performance progress. These mechanisms form the basic business case and oversight framework to ensure that a program is executable and that Congress and DOD decision makers are informed about the program's progress. Best practices recommend an incremental approach in which new development efforts are structured and managed as separate acquisition programs. In addition, each separate program should have a business case that matches requirements with resources-proven technologies, sufficient engineering capabilities, time, and funding-before product development begins. Because DOD does not plan to hold a Milestone B review, its approach for Block 4 modernization will not require the program to have such important reporting and oversight mechanisms in place.

19. Senator MCCAIN. Secretary Kendall, what lessons has the Department learned from the F–22 modernization program? Do you believe it was a good decision to establish the F–22 modernization program as a separate MDAP? Why or why not?

Secretary KENDALL. The Department learned many lessons from the F–22 modernization program. The Department reviewed the F–22 modernization program as well as the modernization efforts for the F–16 and F/A–18 as we looked at the most cost effective, efficient, and flexible approach to F–35 modernization. One of the key lessons learned from F–22 was the need to establish a new contract for the modernization and to separate the budget for modernization into separate program elements and cost reporting elements. The F–22 modernization program was initially added to the existing Engineering Management and Development contract, with budget included as part of the baseline development budget. F–35, on the other hand, has a separate modernization statement of work and contract. Additionally, F–35 modernization is clearly broken out as separate program elements in the budget documentation with separate cost and earned value performance reporting. Due to the nature of how the F–22 program initially approached modernization, I believe it was a good decision to break out the modernization effort as a separate program. However, I believe that due to the prior planning and execution undertaken to provide full transparency and appropriate cost, schedule, and performance oversight, the F–35 modernization effort is best suited to be managed as an extension of the baseline program.

The chart below shows those actions the Joint Program Office will implement to ensure full transparency without having the added administrative cost and burden of declaring a new separate Major Defense Acquisition Program.

[Deleted. Chart retained in committee files]

20. Senator MCCAIN. Secretary Kendall, with the F–35 follow-on modernization effort being planned in increments for each block upgrade, it appears a good opportunity for fixed price contracts would be the best value for the American taxpayer for each increment of capabilities, would you agree?

Secretary KENDALL. I would envision a combination of fixed price type and cost reimbursable contracts as the F–35 Joint Program Office continues to mature the acquisition strategy for the Follow-on Modernization effort. A contract that includes mixed Cost Line Items, utilizing both fixed price and cost incentive where appropriate, will likely provide the optimum risk and responsibility apportionment.

21. Senator MCCAIN. Mr. Sullivan, what lessons regarding program management and execution can be learned from the F–22's follow-on development, yet another very complex fighter modernization program, but in many ways less complex than the F–35's program will be because the F–22 was for a single service from a single nation?

Mr. SULLIVAN. Our experience with the F–22 highlighted that managing modernization programs of this magnitude within an existing program baseline hinders transparency. In March 2005, we found that the Air Force was managing its multibillion dollar F–22 modernization efforts within the existing F–22 acquisition baseline and had not established separate knowledge-based business cases for each modernization increment.[1] As a result, the F–22 baseline and schedule were not immediately adjusted to reflect the new timeframes and additional costs, comingling the funding and some content for the baseline development and modernization efforts-some content that had not been achieved under the baseline program were deferred into the modernization program. When the content, scope, and phasing of mod-

[1] GAO, Tactical Aircraft: Air Force Still Needs Business Case to Support F/A-22 Quantities and Increased Capabilities, GAO-05-304 (Washington, D.C.: March 15, 2005).

ernization capabilities changed over time, it appeared that the F–22 program was fraught with new schedule delays and further cost overruns. The comingling of modernization efforts with the existing baseline reduced transparency and Congress could not readily distinguish the new costs associated with modernization funding from cost growth in the original baseline. We recommended that the Air Force structure and manage F–22 modernization as a separate acquisition programs with their own business cases-matching requirements with resources-and acquisition program baselines. In line with our recommendation, the department separated its F–22 modernization efforts, beginning with F–22 Increment 3.2B, from the baseline program with a Milestone B review, which increased transparency and better facilitated oversight. Since then, the F–22 3.2B modernization program has achieved relatively positive outcomes.

22. Senator MCCAIN. General Bogdan, do you believe the statutory and regulatory requirements for the management of a Major Defense Acquisition Program are a good for transparency and oversight? Why is the Follow-on Modernization program, estimated as costing over $8 billion just for Block 4, so different that those requirements should not apply?

General BOGDAN. Follow-on Modernization (FoM) consists of improvements and upgrades to the existing Air System and is a continuation of the existing F–35 Program. FoM, as an element of the F–35 Program, remains subject to all Major Defense Acquisition Program (MDAP) statutory and regulatory requirements and will be incorporated into existing and/or planned program documentation and reporting products, as appropriate. This approach provides a streamlined and efficient modernization effort that does not jeopardize visibility or oversight. To ensure congressional transparency and oversight into FoM performance, the Acquisition Program Baseline and Selective Acquisition Report will include FoM-specific Research, Development, Test and Evaluation Threshold and Objective targets. All FoM contracts will implement a capability-based work breakdown/reporting structure and will require cost and performance reporting data deliverables separate from the larger Systems Development and Demonstration program and consistent with MDAP requirements.

Additionally, the JPO has reviewed the lessons learned from the F–22 modernization program and ensured that the F–35 modernization program is fully transparent with respect to cost, schedule, and performance. The chart below shows those actions the Joint Program Office will implement to ensure full transparency without having the added administrative cost and burden of declaring a new, separate MDAP.

[Deleted. Chart retained in committee files]

23. Senator MCCAIN. Dr. Gilmore and Mr. Sullivan, from your perspective, what would be the pros and cons of having the follow-on modernization program managed as a separate MDAP?

Dr. GILMORE. Managing the F–35 Block 4 Follow-On Modernization program as a separate MDAP would assure the program rigorously addresses the significant content, cost, and schedule issues present in the program's current plans for executing Block 4 which are discussed in my written testimony. The current schedule for executing Block 4 is overly optimistic—the substantial upgrades in capability proposed are not consistent with the time being allotted for development and test, nor with the proposed test resources—and all costs are not well understood, as indicated by the recent $700 million unfunded requirement for new TR3 processors. The current estimate to fund the modernization program over the next six years is approximately $3 billion, not counting the unfunded requirement for new processors, which exceeds the threshold to be designated as an MDAP. The Air Force initially tried to manage F–22 Follow-on Modernization as an extension of that aircraft's original program, but found that approach to be unworkable. Some assert making Block 4 a separate MDAP would increase its costs and delay its initiation. Those outcomes are hardly inevitable; in fact, at the insistence of the current Under Secretary for Acquisition, Technology, and Logistics, the Department's current acquisition procedures stress the need for, and provide numerous explicit opportunities for, streamlining, flexibility, and waivers in executing MDAPs that can be applied to F–35 Follow-on Modernization.

Mr. SULLIVAN. Managing the F–35 follow-on modernization program as a separate program would increase transparency and oversight. Holding a Milestone B review would establish a new baseline and DOD would be required to separately account for cost, schedule and performance progress to Congress with regular, formal reports, known as Selected Acquisition Reports. This would provide Congress with clear insight into program cost, schedule, and performance progress and allow Congress to hold program officials accountable for achieving F–35 modernization goals.

One potential disadvantage to managing follow-on modernization as a separate program is that it could increase administrative burden on DOD. We recognize the potential for this. In 2015, we found that while programs spent considerable time and resources documenting the information required at milestone reviews, the majority of that documentation was not highly valued by acquisition officials.[2] However, we also found that DOD can successfully streamline its milestone decision process like it did in cases of the F–16 and F–117, while still maintaining appropriate levels of transparency and oversight. Given the magnitude of the F–35 program, any additional time and money that might result from additional documentation is warranted.

FISCAL YEAR 2016 NDAA CERTIFICATION REQUIREMENT

24. Senator MCCAIN. Secretary Kendall and General Bogdan, the fiscal year 2016 NDAA limited funds for the procurement of F–35As until Secretary James certified that the F–35A aircraft delivered in 2018 will have the full combat capability with Block 3F hardware, software and weapons carriage. Have you recommended or do you intend to recommend to Secretary James that she make the certification? Why or why not?

Secretary KENDALL and General BOGDAN. The F–35 Block 3F incorporates advanced tactical avionics and opens the full flight envelope for the F–35. Block 3F weapons for the F 35A will include the GAU–22 internal 25-millimeter gun system, internally-carried AIM–120C Advanced Medium-Range Air-to-Air Missiles, GBU 31 Joint Direct Attack Munitions, GBU–39/B Small Diameter Bombs, GBU–12 Paveway II laser guided bombs, and externally-carried AIM–9X Sidewinder missiles.

The F–35 Program Executive Officer provided a recommendation to the Secretary of the Air Force to certify, as required.

That recommendation included a status of the Block 3F effort, related risk, and steps being taken to mitigate the risk so that she can reach her own decision whether to certify to the congressional defense committees that Low Rate Initial Production Lot 10 USAF F–35A Lightning II aircraft delivered during fiscal year 2018 will be fully combat capable.

25. Senator MCCAIN. Dr. Gilmore, in your opinion, will the aircraft delivered in 2018 have the full combat capability of Block 3F hardware, software and weapons carriage? Why or why not?

Dr. GILMORE. Although I do not expect F–35 system development and demonstration to be complete prior to March 2018, it is possible that aircraft delivered by the end of 2018 could have the "full" combat capability the Services will ultimately decide to accept for Block 3F. However, the "full" Block 3F combat capability the Services accept is likely to be less than the Services now indicate they expect due to the high likelihood of significant unresolved performance deficiencies, even if completion of Block 3F development is delayed until mid-2018. It is unlikely all of the currently identified deficiencies will be rectified by mid-2018, let alone the additional deficiencies that will be discovered during the next year of developmental testing, as well as the deficiencies that will be revealed during initial operational test and evaluation. For example, a recent discovery is that the flight environment in the F–35 weapons bay may be too harsh for the tail fins of the Small Diameter Bomb (SDB) to withstand. The path forward for resolving this issue is currently undetermined, and the potential lack of the ability to employ the SDB, or substantial restrictions on the flight envelope in which it (or the AIM–120, if it is in the same weapons bay with the SDB) could be employed, would be a significant degradation relative to the F–35's currently expected combat capability.

TOTAL F–35 BUY QUANTITY REVALIDATION

26. Senator MCCAIN. Secretary Kendall, last year's NDAA included report language directing the Secretary of Defense to either revalidate the F–35 total buy quantity of 2,443 for all variants or submit a new number by May 25, 2016. Can you update the committee on the Department's intention to meet this requirement, as well as any thoughts on the Department exploring other potential future force mixes of different capabilities?

Secretary KENDALL. The Deputy Secretary of Defense provided the Department's interim response to you and the other defense committees on May 25, 2016.

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[2] 22GAO, Acquisition Reform: DOD Should Its Decision-Making Process for Weapon Systems to Reduce Inefficiencies, GAO-15-192 (Washington, DC: February 24, 2015)

BLOCK BUY / MULTI-YEAR PROCUREMENT

27. Senator MCCAIN. Mr. Sullivan, can you provide the committee any examples of a program pursuing a block buy or multiyear procurement strategy prior to a full rate production decision?

Mr. SULLIVAN. While we have not done extensive analysis of DOD's use of the block buy approach, our most recent F–35 report does note that the use of a block buy prior to the full rate production decision has taken place on at least one other DOD program, the Littoral Combat Ship (LCS).

28. Senator MCCAIN. Secretary Kendall, do you consider the F–35 block buy contracting proposal under consideration a multi-year procurement scheme? Why or why not?

Secretary KENDALL. A Block Buy Contract (BBC) is similar to a Multi-Year Procurement (MYP), with key differences. BBC is a contract strategy that purchases materiel in Economic Ordering Quantities (EOQ) for all lots of aircraft included in the Block Buy in the year prior to the first lot of aircraft. Unlike a MYP, a BBC does not imply a prior commitment to buy all aircraft in the out years of Block Buy because funding will be provided annually through congressional appropriations. There is no additional termination liability above the funds obligated, which are limited to regular Advance Procurement funding and EOQ funding for the first year. In addition, the material purchased with EOQ funding may be used in future lots of aircraft if quantities change. The Department requires authorization from Congress for any BBC strategy, aircraft quantities, and the purchase of advance materiel for EOQ in the year prior to the start of the BBC. The Department will work with the Senate Armed Services Committee and the other defense committees as we assess the merits of an F–35 BBC.

29. Senator MCCAIN. Secretary Kendall, would you consider supporting a block buy contracting proposal for the F–35 prior to completion of Initial Operational Test & Evaluation (IOT&E)? Why or why not?

Secretary KENDALL. I would consider supporting a Block Buy contracting proposal prior to completion of Initial Operational Test and Evaluation (IOT&E). I believe we will have a tremendous amount of knowledge relative to the capabilities and maturity of the weapons system as we begin IOT&E. Information gained during IOT&E will be valuable in pointing out areas where the program can improve as we transition to Follow-on Modernization. The Services and Department can, and will, continue to focus on modernizing the F–35 to meet and stay ahead of the evolving threat. However, I do not feel that waiting for completion of IOT&E is absolutely essential, particularly if the Department, Services, and Partners can realize significant savings for aircraft they intend to buy.

ESCAPE SYSTEM

30. Senator MCCAIN. General Bogdan, the committee understands that the program office has identified three fixes to the escape system deficiencies and that they will all be complete by November of this year. Can you please provide the committee on the estimated timeline to complete the retrofit of all existing aircraft? What is the estimated cost to complete all of the retrofits, and who is responsible for funding these?

General BOGDAN. There are three technical solutions to the escape system that when in place will reduce the risk of neck injury to all pilots. All three are planned to be ready by the end of 2016. These solutions include:

1. A head support panel between the parachute risers. This eliminates the possibility of the head/helmet going between the parachute risers in low-speed ejections.
2. A pilot-selectable switch to delay parachute deployment for lighter weight pilots. This ~0.5 second delay will reduce parachute opening shock and neck loads during the parachute deployment phase of the ejection.
3. A lighter Gen III pilot helmet. This will reduce neck loads during all phases of ejection (catapult, windblast, drogue, and parachute deployment).

The current estimate to complete the entire retrofit effort is 24 months. The first retrofits should begin in early 2017. The estimated cost for the complete fleet retrofit is approximately $35 million. It is the Government's position that this cost should be the responsibility of industry, particularly Martin Baker, and is in the process of negotiating this outcome with industry.

31. Senator MCCAIN. Dr. Gilmore, has the escape system been tested in other than stable conditions (i.e. out of control flight)? If no, what is the potential for further discrepancies to be discovered?

Dr. GILMORE. DOT&E is not aware of any testing with the F–35 escape system in other than stable conditions. Off-nominal testing of other systems that have a similar escape system—where the canopy is shattered with the detonation of an embedded flexible linear shaped charge at the beginning of the ejection sequence—has shown that contact between canopy chards and the pilot can occur, adding risk to the ejection sequence; thus, the potential still exists for discovery of additional problems with the F–35 escape systems. To understand and characterize these interactions, the program should complete off-nominal testing of the escape system as soon as possible, a recommendation I made in my F–35A Ready-for-Training Operational Utility Evaluation Report in February, 2013.

BLOCK 3I AND 3F SOFTWARE

32. Senator MCCAIN. General Bogdan, please provide the committee an update on flight testing of the Block 3i and 3F software and current projected delivery of each

General BOGDAN. Block 3i Development:

- The final Mission System Block 3i development build was delivered to flight test on March 17, 2016, and completed flight testing on April 26, 2016. No additional Flight Science testing was required. The 3iP6.21 software was loaded on Operational Test aircraft and is currently still being flown.
- On April 28, 2016, the F–35 Program Executive Officer made the decision that all Block 3i work was complete and recommended to the Secretary of the Air Force that Block 3i software is ready for United States Air Force Initial Operational Capability.

Block 3F Development:

- F–35 Block 3F software is now in development flight test. The software is projected to support remaining Weapon Delivery Accuracy surge events in summer 2016 (excluding gun events).
- All remaining required Block 3F capability is on track to begin flight testing in September 2016 and will support the final verification testing requirements for System Development and Demonstration.
- Development and testing continues to improve; activities include:
  - increase/refine modeling, simulation, and software lab development cycles
  - ground testing events for flight test risk reduction
  - utilizing engineering test builds to safely and rapidly incorporate flight test feedback for final software capability solutions
  - continuous reassessments of criticality and severity of "must-fix" deficiencies for incorporation and verification of projected performance data requirements requested
  - concurrent testing to include weapon surge events

As previously stated, the full Block 3F combat capability will complete flight testing in the fall of 2017 timeframe, with A model capability fielded in late 2017 followed by B and C models capability in early 2018.

33. Senator MCCAIN. Dr. Gilmore, what are your biggest concerns regarding the Block 3i and 3F software and your estimate for their respective deliveries?

Dr. GILMORE. My concerns with Block 3i are that even with improvements in its stability, it will still provide limited combat capability. Block 3i software was designed to simply enable the limited Block 2B mission systems capabilities, implemented using the F–35's original processing hardware, to work on the upgraded Technical Refresh 2, or TR2, hardware used in the production of Lot 6 and later aircraft. An early version of Block 3i software was delivered in October 2014, when the Air Force accepted its first Lot 6 aircraft, although the capabilities this version provided were very limited and mission systems stability proved to be significantly worse than Block 2B. Subsequent versions of the software have undergone flight testing and fielding, the latest version having completed developmental testing at the end of April (referred to as 3iR6.21). The program recently completed an abbreviated flight test of Block 3iR6.21 and is conducting analyses of the stability of the mission systems to see if it is adequate to field to operational units and to be the final Block 3i build of software which would support the Air Force decision to declare initial operational capability (IOC). Initial indications are that the latest version of Block 3i has improved the stability of mission systems performance in-flight significantly relative to previous versions. However, pre-flight stability issues persist, and the status of the correction of the other deficiencies cited in my written testimony, for example in sensor fusion, is unknown. I expect that Block 3i will be

accepted by the Air Force to support its IOC in the fall of this year, consistent with the threshold date for achieving that capability.

My concern with Block 3F is that it is maturing slowly and is unlikely to ultimately provide the full set of combat capabilities the Services currently expect. Block 3F software development was paused in February this year when the latest version of Block 3F software—version 3FR5—was so unstable that productive flight testing could not be accomplished. To fix the stability problems, the program reverted to Block 3i development and flight testing, and just recently restarted flight testing with an updated version of Block 3FR5 software that incorporates the new stability fixes from Block 3iR6.21. The program plans to release to flight testing the last build of Block 3F software that adds capability—3FR6—later this summer, then complete two more builds—3FR7 and 3FR8—to address problems expected to be discovered during testing. The efficiency in accomplishing test points during flight test may be improved from what was seen earlier in CY16, if the stability fixes completed in Block 3i and many critical deficiency fixes are realized in Block 3F. Delivering and testing the numerous new and advanced capabilities planned to be in Block 3F mission systems, which are specified in the program's Operational Requirements Document (ORD), presents significant challenges for remaining development and flight test. As of the end of April, over 80 percent of the baseline test points in the Block 3F test plans remained to be completed, including the most difficult envelope and avionics testing, along with most of the weapons deliveries. Based on the deficiencies currently cited as critical that must be fixed, and the program's currently booked test points, including weapon delivery events, I anticipate that development of Block 3F will complete no earlier than the middle of calendar year 2018. However, the Services may ultimately decide to accept significant deficiencies in Block 3F mission systems capabilities relative to their current expectations in order to keep the program within its currently stated cost and schedule. In that event, the costs and time required for correction of deficiencies and implementation of forgone capabilities would carry into Block 4 development, and adverse findings during initial operational test and evaluation would be likely.

34. Senator McCain. Secretary Kendall, under what type of contracts are the deliveries of software blocks, fixed price or cost plus?

Secretary Kendall. Block 3i and 3F software is delivered under the F–35 System Development and Demonstration contract, which is a cost-plus incentive fee contract. Block 3F will be the last block of software delivered under this contract.

AUTONOMIC LOGISTICS INFORMATION SYSTEM (ALIS)

35. Senator McCain. General Bogdan, please provide an update on the estimated delivery of ALIS version 2.02, which is required for Air Force Initial Operational Capability (IOC). DO you believe this will impact the Air Force's declaration of IOC within their planned window?

General Bogdan. The basic Autonomic Logistics Information System (ALIS) 2.0.2 capability will be available for fielding in late September 2016. However, a portion of this capability (engine integration) has been delayed beyond this. We are working through technical software challenges and expect that full 2.0.2 capability will be available for fielding prior to the end of December 2016.

It is important to note that United States Air Force (USAF) Initial Operational Capability (IOC) is not fully dependent on ALIS 2.0.2 delivery. The USAF requirement for IOC with respect to ALIS is that the system be able to support deployed combat operations. The decision as to which version of ALIS is adequate for deployed operations is a USAF decision.

36. Senator McCain. Secretary Kendall, what type of contract is ALIS being developed under?

Secretary Kendall. Autonomic Logistics Information System (ALIS) development is covered under the F–35 System Design Development contract, with a cost-plus incentive fee construct.

37. Senator McCain. Dr. Gilmore, can you provide an assessment of the ALIS program and what its greatest risks are?

Dr. Gilmore. Overall, ALIS has demonstrated steady, but slow improvement. Nonetheless, deficiencies and usability problems require users to employ workarounds, which are often time- and labor-intensive, to complete normal maintenance tasks and set up operations for deployment. Service-led deployment exercises conducted during the past year have shown that, despite a more modular version of the hardware components, transferring data from the home-station unit to the

deployed location is problematic, requiring the services of contractor personnel to ensure aircraft data files are accurate and complete.

Two major software releases, ALIS 2.0.2 and 3.0.0, are planned before completion of F–35 development, but schedule risks exist in delivering the capability currently expected for each of these releases. As noted in my annual report, the program has previously deferred capability content of ALIS software releases (i.e., ALIS 2.0.1 planned for Marine Corps initial operational capability (IOC)) to meet schedule; however, this pattern of behavior cannot be sustained through the rest of F–35 development. Completing the development, testing, and fielding of the capabilities planned for ALIS 3.0.0 before the end of development is high risk. ALIS 3.0.0 is required prior to the start of initial operational test and evaluation; however, progress has been limited as the program is still struggling to deliver planned ALIS 2.0.2 functionality, which the program now says is at least 60 days late. Another area of high risk is cybersecurity. Although the risks from a breach in cybersecurity are not limited to ALIS components and its supporting network infrastructure (i.e., they apply to the F–35 air vehicle as well), the program and Marine Corps have been resistant to support cybersecurity testing of operational components due to a concern that such testing would disrupt day-to-day flight operations. The limited testing completed to date on ALIS components has revealed significant deficiencies that must be corrected which validates the requirement to complete all cybersecurity testing planned for the balance of F–35 development. Disruptions that could occur during combat resulting from a cyber attack that exploits unrealized vulnerabilities due to inadequate testing would clearly be much more disruptive and serious than disruptions occurring now when the F–35 is not being used in combat.

Beyond these risk areas, the program also faces a number of challenges to address within ALIS:

- Deployability—Though the program has begun fielding the more deployable ALIS hardware and both the Air Force and Marine Corps have conducted deployment demonstrations with this hardware, software deficiencies and problems with data transfer make it difficult for units to rapidly achieve readiness for operations once they deploy.
- Data Integrity and Process Maturity—Units have difficulty maintaining data integrity when attempting to use spare parts or transfer data. Missing or inaccurate electronic equipment logbooks require manual tracking and time-consuming corrections which adversely impact maintenance and operations.
- Lack of Redundancy—ALIS data flow from operational units through the single U.S. Central Point of Entry (CPE) at Eglin AFB and the single operational Autonomic Logistics Operating Unit (ALOU) at Fort Worth. The program is working to create an alternate "Operationally Representative Environment" that will allow testing of ALIS off of the operational grid, but currently has no redundant systems for the CPE or ALOU.
- Action Requests (ARs)—Maintenance personnel submit ARs to seek assistance from Lockheed Martin, but the process is inefficient and units do not have visibility into ARs submitted by other units which can delay completion of maintenance.
- Immaturity of ALIS Applications—Pilots find the Off-board Mission System (OMS) used for mission planning difficult to use because it does not include all needed capabilities. Since the program does not provide dedicated OMS training, pilots also find OMS difficult to learn. The Training Management System (TMS), which is used to track pilot and maintainer qualifications, has generally not met Service needs, causing units to track qualifications outside of ALIS and increasing the risk personnel will be assigned to tasks for which they are unqualified. Other applications also have functionality and usability deficiencies.
- Immaturity of ALIS Training—Formal ALIS training relies on PowerPoint presentations that do not reflect how ALIS actually performs and does not address currently required workarounds. Many personnel are forced to learn to use ALIS on the job at the unit level, increasing the risk of inconsistent processes and inefficient practices while increasing the risk of errors.

LESSONS LEARNED (?)

38. Senator McCain. All witnesses, gentlemen, what are the lessons to be learned from the troubles of the F–35 program? How are they being applied to acquisition and program management decisions today? What specific steps have been put in place to ensure this "acquisition malpractice" is not repeated? What steps can Congress take to ensure future major acquisition programs such as the B–21 bomber, and Next Generation Air Dominance are developed and procured more rapidly and at reasonable cost to the American taxpayer?

Dr. GILMORE. We must develop requirements that are technically feasible, operationally sound, combat mission-focused, and affordable, which can only be accomplished if both operators and engineers are full partners in that development, which is not now the case. We should pursue more evolutionary upgrades than revolutionary leaps forward, and develop and approve operational requirements accordingly. We must initiate programs using realistic, independently- and critically-reviewed estimates of cost, schedule, and technical readiness. The independent cost-estimating provisions contained in the Weapon System Acquisition Reform Act have been very helpful with regard to cost realism. Similar initiatives are needed regarding independent, critical review of technical readiness and schedule. We must be realistic regarding what modelling and simulation can and cannot do, particularly with regard to (but not limited to) substituting for live testing, rather than imposing unrealistic assumptions regarding what modelling can do in order to make program costs and schedules fit unrealistic targets that will never be met. We should lengthen the tenure of program managers sufficiently to eliminate the existing incentive to rationalize away and pass on problems to a successor. We should continually critically review programs' progress and be prepared to recognize and, if warranted, re-structure or terminate programs that are failing. We must demand leadership with the expertise and courage to actually do what I list above and hold that leadership accountable. Prior to its re-structure in 2010, the F–35 program and its leadership (both within and above the program office) were deficient in all of the above areas. Developing realistic requirements, cost estimates, and schedules for executing F–35 Block 4 development using the principles cited above are critical to Block 4's success. Unfortunately, as I discussed during my testimony, the program's current plans for Block 4 development incorporate numerous unrealistic assumptions.

Secretary KENDALL. There are numerous lessons learned from the F–35 Program. The first lesson that became apparent early on was the requirement for technology demonstrators, nominally required to demonstrate vertical lift and common configuration concepts, as opposed to more robust representative prototypes was not optimal. Inadequacies in the technology demonstrators led to underestimating the weight of the aircraft, requiring additional time and money, and an almost immediate re-baselining of the development program. Much of the future of Joint Strike Fighter cost growth was largely written when budget and pricing decisions were made in 2001 based on those unrealistic and immature expectations with regard to cost and schedule. Additionally, acquisition reform initiatives from the mid-1990s had transferred much of the responsibility for requirements interpretation and integration from the Government to the contractor. This has proven to be a faulty arrangement. Finally, a critical lesson we learned was that concurrency, on the level of the F–35 Program, is not sound acquisition practice. Buying as many aircraft as we did, prior to having a stable and producible design, created difficulties across the F–35 enterprise and will result in large modification costs. Better Buying Power initiatives put in place over the last five years have resulted in an increased focus on cost reduction and responsible program management. Following the Nunn McCurdy cost breach, subsequent certification, and re-baselined program, cost and schedule performance have been largely as predicted and stable. There are still technical challenges that have surfaced and been addressed or are still being addressed, but that is normal for any program in development. However, the unrealistic and optimistic basis for which this program was initially established has been replaced by responsible realism and a "prove it" attitude on the part of the oversight and management team. The best thing that Congress can do to ensure future programs are established, developed, and procured at the most reasonable cost to American taxpayers is to leave in place the Department's current acquisition oversight structure. This will allow the positive trends seen over the past five years on this program and others to continue.

Mr. SULLIVAN. While there are numerous lessons to be learned from the F–35 program, the primary lesson is that programs with high levels of concurrency between technology development and product development, and/or between developmental testing and production are likely to experience significant cost and schedule problems. Our prior work on knowledge-based acquisition approaches shows that a knowledge deficit early in a program can cascade through design and production, leaving decision makers with less knowledge to support decisions about when and how to best move into subsequent acquisition phases that commit more budgetary resources. Demonstrating technology maturity is a prerequisite for moving forward into product development, during which time the focus should be on design and integration. A stable and mature design, proven through testing, is also a prerequisite for moving forward into production, where the focus should be on efficient manufacturing. In 2016, our analysis of DOD's major defense acquisition programs found that programs still did not fully apply knowledge-based best practices aimed at de-

creasing concurrency.[3] For example, some programs were still carrying technology risk well into system development or are proceeding into production before manufacturing processes are under control. We also found less use of competition measures throughout the acquisition life cycle and overlap between developmental testing and production, which threaten programs' abilities to meet their cost, schedule, and performance objectives.

There have been several recent initiatives by Congress and DOD that have been aimed at improving program performance such as the Weapon Systems Acquisition Reform Act of 2009 (WSARA) and DOD's "Better Buying Power" initiative. Both of which seem to have improved some program results. For example, programs that started development after the implementation of the WSARA and DOD's "Better Buying Power" initiatives began in 2010 have achieved cost reductions or shown less cost growth than those that began development before 2010.

A particular challenge for Congress is the fact that committees must often consider requests to authorize and fund a new program well ahead of the start of product development-the point at which key business case information would be presented. For example, a budget request to begin system development could come 18 months before the actual program decision. Given this time lag, Congress could be making critical funding decisions-which in effect authorize the start of development-with limited information about program risk factors, systems engineering progress, and the soundness of the program's business case. Therefore, to ensure future weapon systems are developed and procured more rapidly and at a reasonable cost, Congress could focus on ensuring that programs have a knowledge-based acquisition approach with an executable business-case that matches requirements with resources before starting system development. Partly, this can be done by requiring DOD to report on each major acquisition program's systems engineering status in the department's annual budget request, beginning with the budget requesting funds to start development. In addition, ensure that programs demonstrate a product works as intended through development testing before production begins.

QUESTIONS SUBMITTED BY SENATOR JOE DONNELLY

F135 ENGINE COMPONENTS

39. Senator DONNELLY. Lt Gen Bogdan, I understand that certain components or subassemblies in the F135 engine are built overseas. Could you provide a comprehensive list of the components of subassemblies that are built or assembled overseas?

General BOGDAN. Of the over 4,000 F135 engine components (parts), there are 272 parts with an international source supplier—260 of the 272 parts are sourced to suppliers in member nations of the F–35 International Partnership. In addition to the international sources, there is a U.S. source for 150 of these 272 components. We are prepared to provide the Committee a briefing if any additional information is required.

40. Senator DONNELLY. General Bogdan, for any of these components or subassemblies, is any of the engineering and design effort supporting that work provided by overseas workers? If so, for which ones is this true?

General BOGDAN. Engineering and design effort is provided for 75 out of the 272 parts with international suppliers. We are prepared to provide the Committee a briefing if any additional information is required.

ALTERNATE ENGINE PROGRAM

41. Senator DONNELLY. The Department of Defense included funding for the F–35 alternate engine from fiscal year 1996 through fiscal year 2007. What benefits did the alternative engine program and the associated competition between the F135 and F136 yield for the F–35 program overall?

Secretary KENDALL and General BOGDAN. Almost $3 billion was invested in the F136 engine through fiscal year 2007. The F136 alternate engine contributed significant risk reduction for the F–35 propulsion program. While the F136 did not make it into competitive production, it did allow the Department to manage the program's propulsion efforts to a point where the risk involved with a single engine provider was deemed manageable. In addition, the F136 program provided the Department with a competitive industrial base alternative for tactical aircraft size propulsion

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[3] GAO, Defense Acquisitions: Assessments of Selected Weapon Programs, GAO-16-329SP (Washington, DC: March 31, 2016).

systems. Development of the F136 helped in enabling a competitive engine contractor to continue with the advanced propulsion programs the Department is working on now that will benefit us in the future. The Department does not have empirical data, but we also believe that the F136 program resulted in an increased emphasis on cost and responsiveness on the part of the F135 prime contractor.

Mr. SULLIVAN. We have not conducted any recent analysis specifically addressing the benefits or effects of the competition between the F135 and F136. Our last assessment of the alternate engine program was in 2010.[4]

42. Senator DONNELLY. Mr. Sullivan, can you explain further the April 2016 GAO assessment that the F35A and B engines are at 55 percent and 63 percent (respectively) of where the program expected them to be?

Mr. SULLIVAN. According to data provided by Pratt & Whitney, the reliability growth curves established for the F–35A engine-which is the same engine being used on the F–35C-projected that on average, the engine should have been achieving 142 hours between failures as of September 2015. However, as of as of September 2015, actual engine performance data collected and provided to us by Pratt & Whitney indicated that the F–35A engine was only averaging 79 hours between failures across the operational fleet. Similarly, Pratt and Whitney's growth curves projected that the F–35B engines should have been achieving 106 hours between failures as of September 2015, while the actual engine performance data as 0T September 2015 indicated that they were only averaging 67 hours across the operational fleet at that time.

43. Senator DONNELLY. Mr. Sullivan, General Bogdan's testified that "today the F–35 engine has about 52,000 fleet hours on it, and it's maintaining about a 94 percent full mission-capable rate." Please explain the 94 percent mission capable rate as compared to GAO's assessment of the engines being at 55 percent and 63 percent of where they were expected to be.

Mr. SULLIVAN. We have not seen the specific data or analysis underpinning General Bogdan's claim that the F–35 engine was maintaining a 94 percent full mission-capable rate. That said, it is important to note that "mission capable rate" is a different measure than the reliability metrics we reported on, so the data points are not directly comparable. According to DOD, mission capable rates measure the ability of a system to perform its intended missions, while the reliability metrics we reported, mean time between failures-design controlled, track the amount of time between failures that are directly attributable to the design of the aircraft. In addition, General Bogdan's assessment appears to combine and average the data from all F–35 engines (F–35A, F–35B, and F–35C) while the data we reported makes a distinction between the F–35A / F–35C engines and the F–35B engines.

F–35B LIFT FAN OVERHAUL

44. Senator DONNELLY. Indiana's Rolls Royce factory opened the first repair and overhaul facility for the F–35B lift fans in March 2015. The facility serves a critical need in keeping the F–35B flying safely and does both the initial testing and regularly scheduled maintenance for the liftfan system. General Bogdan, what is the annual capacity of the Rolls Royce facility in Indiana to overhaul lift fans?

General BOGDAN. The annual capacity is estimated at 64 Lift Fans based on a normal 1-shift, 5-day work week.

45. Senator DONNELLY. Are there any barriers to increasing production/capacity at the Indiana lift fan facility?

General BOGDAN. There are no known barriers to increasing Lift Fan production/capacity.

46. Senator DONNELLY. Based on the USMC's procurement of 353 F–35B's and their forecasted utilization of 25 flight hours per month, how many lift fan overhauls does the Joint Program Office estimate need to be completed for the fiscal years 2018 through 2030?

General BOGDAN. An estimated 330 Lift Fans will be overhauled between fiscal year 2018 and fiscal year 2030. The by-year breakout is shown below. In addition to Maintenance Repair and Overhaul (MRO) activities, all production Lift Fans uti-

[4] GAO, **Defense Acquisitions: Analysis of Costs for the Joint Strike Fighter Engine Program,** GAO-07-656T (Washington, D.C.: March 22, 2007). GAO, Joint Strike Fighter. Assessment of DOD's Funding Projection for the F136 Alternate Engine, GAO-10-1020R Washington, D.C.: September 15, 2010).

lize a common resource—the Lift Fan Acceptance Test Cell. A second shift serving this facility will allow the combined yearly MRO and production rates to exceed the 64 Lift Fan per year.

Fiscal Year	MRO Forecast
2018	17
2019	13
2020	15
2021	24
2022	20
2023	22
2024	25
2025	27
2026	28
2027	31
2028	33
2029	36
2030	39
Total	330

QUESTIONS SUBMITTED BY SENATOR MAZIE K. HIRONO

ACQUISITION REFORM

47. Senator HIRONO. Secretary Kendall and Lt. Gen. Bogdan, sometimes a program can experience delays and issues as a result of the rules and regulations that make up our acquisition process. As you know, this committee under the leadership of Chairman McCain and Ranking Member Reed is looking at the acquisition process to find ways to improve the way we procure systems. Are there any areas where changes to the current process could have benefitted the Joint Strike Fighter program in the past and more importantly are there areas to change which can help this program as well as others succeed in the future?

Secretary KENDALL and Lt. Gen. BOGDAN. I appreciate the support that the Senate Armed Services Committee (SASC) has provided to the F–35 Joint Strike Fighter program as well as other acquisition programs in the past. With the help of the SASC, the F–35 Program has realized stable costs across the areas of development and procurement for the five years since the program was re-baselined following the Nunn McCurdy certification. SASC guidance was instrumental in the transition to fixed price production contracts earlier than initially planned. The move to fixed price production contracts, in conjunction with the Department's emphasis on should cost affordability initiatives, helped to put the F–35 unit costs on a path to realize significant savings for the U.S. Services and our International Partners and allies. The use of fixed price-type contracting was appropriate at that time for that type of contract. However, that reasoning cannot and should not be applied wholesale across the breadth of the Department's acquisition contracts. The ability to negotiate a fixed price-type contract for the Low Rate Initial Production (LRIP) Lot 6 contract was achievable because of the knowledge and insight gained into actual costs from the prior five LRIP contracts. If that same logic had been applied to the development contract, the Government would have been forced to accept far more risk and likely incur costs in excess of the negotiated cost-type contract.

I believe the most effective way that the SASC can help the F–35 and other programs in the future is to allow the Department to retain the current acquisition management and oversight structure. The Department has seen improvements in all measures of acquisition performance over the past seven years. This improvement can be traced to implementation of the Weapons System Acquisition Reform Act of 2009 (WSARA) and the Better Buying Power initiatives from 2010 to the

present. Both of these acquisition improvement initiatives involved the Department working together with Congress to actively reform and improve the acquisition process. However, initiatives in the current legislation, such as the dissolution of the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD AT&L), among others, would reverse key aspects of WSARA and slow the implementation of many of the Better Buying Power initiatives.

QUESTIONS SUBMITTED BY SENATOR JIM INHOFE

F–35 OPERATIONAL CAPABILITIES

48. Senator INHOFE. Lt. Gen. Bogdan, what capabilities does the F–35B have with the Block 2B software? How do those capabilities compare to legacy aircraft and ability to execute combat missions in a denied access environment?

Lt. Gen. BOGDAN. Block 2B provides initial warfighting capability to the F–35 fleet, including basic avionic and mission system capabilities, improved flight envelope, and internal weapons carriage and employment for the AIM–120C Advanced Medium-Range Air-to-Air Missile and the GBU–31 Joint Direct Attack Munition. It enables the mission areas required by the U.S. Marine Corps to support Initial Operational Capability, including close air support, limited offensive and defensive counter-air, limited suppression and destruction of enemy air defenses, air interdiction, assault support escort, and armed reconnaissance. At the current time, Block 2B equipped F–35B aircraft are only capable of 5.5Gs. The Joint Program Office is exploring a path that will allow F–35B aircraft with Block 2B to operate out to 7.0Gs by the end of 2017. The F–35's unique combination of stealth, advanced sensor suite, data fusion, electronic warfare, and battlespace situational awareness allow it to perform all of these missions in a denied environment to a level that would not be possible with legacy platforms like the F–16, F/A–18, and AV–8B.

49. Senator INHOFE. Lt. Gen. Bogdan, same questions for the F–35A with the Block 3i software—its capabilities and comparison to legacy aircraft?

Lt. Gen. BOGDAN. Block 2B and Block 3i End-State software loads, 2BR5.3 and 3iR6.21 respectively, represent a common level of capability that we have begun to roll-out to the fleet. Block 3i aircraft stand out in that they operate on upgraded hardware that will allow for capability expansion with Block 3F software, and they utilize the full capability of the Generation III Helmet Mounted Display System. Block 3i provides initial warfighting capability to the F–35 fleet, including basic avionic and mission system capabilities, improved flight envelope, and internal weapons carriage and employment for the AIM–120C Advanced Medium-Range Air-to-Air Missile and the GBU–31 Joint Direct Attack Munition. It will enable the mission areas required by the U.S. Air Force to support their Initial Operational Capability (IOC), including basic close air support, interdiction, and limited suppression and destruction of enemy air defenses in a contested environment. The F–35's unique combination of stealth, advanced sensor suite, data fusion, electronic warfare, and battlespace situational awareness allow it to perform all of these missions in a denied environment to a level that would not be possible with legacy platforms like the F–16, F/A–18, and AV–8B.

50. Senator INHOFE. Lt. Gen. Bogdan, what additional operational capabilities does Block 3F bring to the F–35? What combat missions will it be able to execute?

Lt. Gen. BOGDAN. Block 3F will provide full F–35 warfighting capability by incorporating advanced decision aids, integration of internal and external sensors, additional radar modes, enhanced electronic warfare capabilities, enhanced geolocation, embedded training, full datalink capabilities, threshold weapons (to include external carriage and employment), and expanded flight envelopes. U.S. F–35s will be capable of employing the following weapons in Block 3F, in some cases depending on variant:

- AIM–120C/D Advanced Medium-Range Air-to-Air Missile (AMRAAM)
- GBU–31 Joint Direct Attack Munition (JDAM) 2,000 lbs
- GBU–32 Joint Direct Attack Munition (JDAM) 1,000 lbs
- GBU–12 Paveway II
- GBU–39/B Small Diameter Bomb (SDB I)
- AIM–9X Sidewinder
- AGM–154 Joint Stand-Off Weapon C (JSOW–C)
- GAU–22 Gun System (internal or external missionized gun pod)

Block 3F takes full advantage of the Tech Refresh 2 suite of hardware by incorporating new software functionality that enables all of the mission areas specified in the Joint Strike Fighter Operational Requirements Document:

- Air Interdiction (AI), moving and stationary targets
- Offensive Counter Air (OCA), fighter sweep
- Defensive Counter Air (DCA), cruise missile defense, fighter and bomber
- Close Air Support (CAS), battlefield and urban
- Strategic Attack
- Suppression/Destruction of Enemy Air Defenses (SEAD/DEAD), strategic and tactical
- Armed Reconnaissance (AR)
- Strike Coordination and Reconnaissance (SCAR) with inherent Electronic Protection (EP)
- Electronic Attack (EA) and Electronic Warfare Support (ES)
- Anti-Air Warfare (AAW)
- Tactical Air Controller (Airborne) (TAC(A))
- Forward Air Controller (Airborne) (FAC(A))
- Assault Support Escort
- Attack of Maritime Surface Targets
- Mining and Reconnaissance
- Combat Search and Rescue (CSAR)

Across the entire F–35 Air System, Block 3F includes sustainability and supportability features like Prognostic Health Management and representative training devices.

51. Senator INHOFE. Secretary Kendall and Lt. Gen. Bogdan, what impact will the F–35 have on our ability to fight in an anti-access/area denial (A2/AD) environment?

Secretary KENDALL and Lt. Gen. BOGDAN. The F–35 will play an integral role in the Department's ability to engage any adversary in an anti-access/area denial (A2/AD) environment. The F–35 has been developed with the objective of providing the Air Force, Navy, and Marine Corps, as well as our allies, with a 5th-generation strike fighter capable of executing the missions required to counter an increasingly advanced threat. The multi-role F–35 will complement the F–22 in the air superiority role required in an A2/AD challenge in addition to having the ability to penetrate robust air defenses and deliver a wide range of precision attack weapons. From a naval perspective, the F–35 will complement the F/A–18 E/F and provide 5th-generation strike fighter capability for both Carrier Strike Groups and Expeditionary Strike Groups. Our ability to continue to procure the F–35 in sufficient numbers required to recapitalize our legacy tactical aircraft fleet is critical to meeting the current and future A2/AD challenges.

52. SENATOR INHOFE. Secretary Kendall and Lt. Gen. Bogdan, what outstanding airframe and hardware issues still need to be resolved for the F–35A, F–35B and F–35C?

Secretary KENDALL and Lt. Gen. BOGDAN. Among the 734 unique Line Replaceable Components (LRCs), 717 have been qualified, 17 are still undergoing qualification, and all are on schedule to complete prior to the end of the System Development and Demonstration (SDD) Program. Below is a list and expected completion date for these 17:

- one for the F–35A refueling receptacle / scheduled to complete summer 2016
- one for the F–35C aileron actuator / schedule to complete summer 2016
- one for the 270-volt battery / schedule to complete summer 2016
- one for the 28-volt battery charger and control unit / schedule to complete summer 2016
- two for the F–35C tailhook / scheduled to complete winter 2017
- one for the weapons bay / scheduled to complete winter 2017
- ten for the landing gear / scheduled to complete fall 2017

In addition, the team is working to complete development of a carbon monoxide catalyst system in support of improved pilot protection when aircraft are in close proximity. The team is also working to complete development of the chemical and biological protective pilot flight equipment. Of significance, the 270-volt battery is experiencing challenges meeting gunfire vibration requirements and may need to be redesigned to higher vibration levels. Also, the F–35B main landing gear tire improvement effort will continue after completion of full qualification in order to provide improved tire life.

As F–35 flight and ground testing continue, additional discoveries may occur. If they do, the F–35 Government and industry team will investigate to determine what, if any, mitigations are necessary.

Durability testing is progressing. F–35A completed two lifetimes of testing in October 2015 and is approximately one-quarter of the way through third lifetime testing. F–35C has completed 87 percent of two lifetimes testing, with a number of findings affecting the portions of the fuel floor, forward root rib, and fuselage station 497 bulkhead. Production incorporation of redesigns is expected no later than Low Rate Initial Production (LRIP) Lot 11 for identified findings. F–35B testing has completed 62 percent of two lifetimes. Major findings previously identified on wing carry through bulkheads and wing rear spar have resulted in incorporation of redesigns for production no later than LRIP Lot 9. In addition to using conventional redesign/retrofit processes, such as cold working for redesign and retrofit concepts, the team is qualifying Laser Shock Peening (LSP) for specific locations. LSP is a highly controlled process that changes the stresses in a metallic part to improve its damage tolerance. Qualification is expected to complete by October 2017, allowing LSP to be used in both production and retrofit processes.

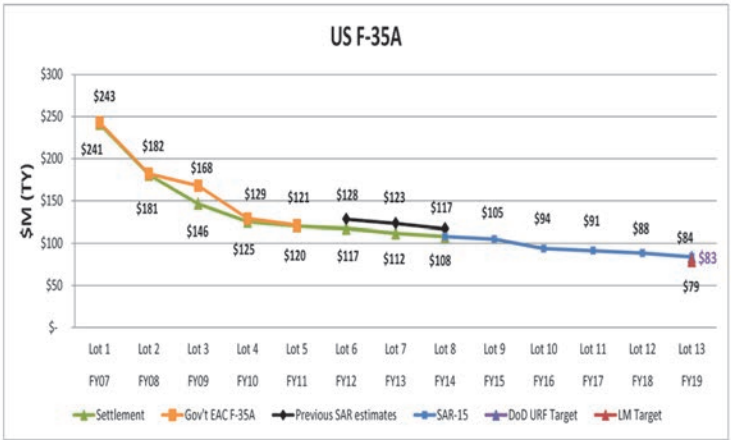
AIRCRAFT PRODUCTION AND COSTS

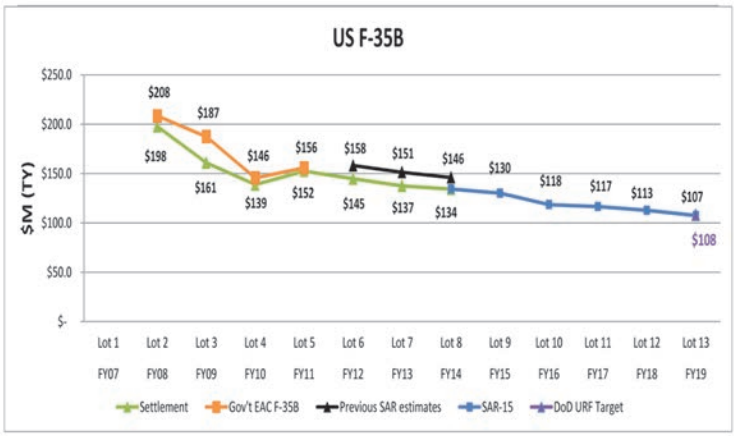
53. Senator INHOFE. Lt. Gen. Bogdan, did the F–35 meet its production goal in fiscal year 2015? What is the current cost for each F–35 variant and projected cost through full rate production? How many F–35s are we producing on the line today, US and allied, and what is it maximum capacity of the plant? What is the cost difference in production between the low numbers we are producing today and increasing production to maximum or near maximum rate? How much money is saved purely from producing higher quantities?

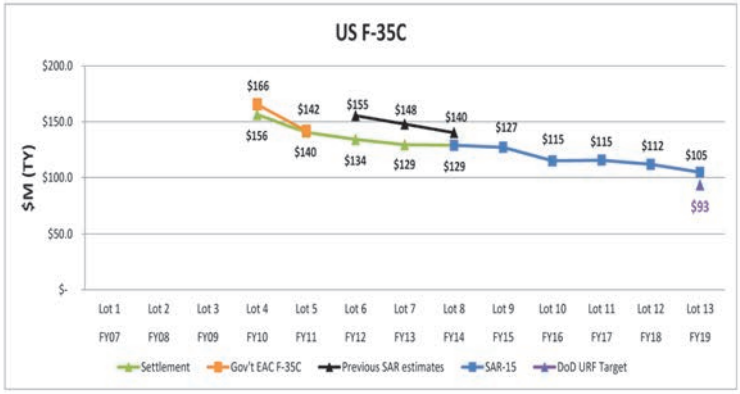
Lt. Gen. BOGDAN. Yes, 45 of 45 aircraft were delivered.

Low Rate Initial Production (LRIP) Lot 8 aircraft are currently being delivered by Lockheed Martin. The LRIP Lot 8 unit price, including the engine and industry's fees, of each F–35 variant is provided in the table below:

Variant	LRIP 8 Price
F–35A	$108M
F–35B	$134M
F–35C	$129M







As of June 30, 2016, 126 F–35 aircraft are in various stages of production, including 54 Partner/Foreign Military Sales aircraft. This includes various subassemblies spanning multiple LRIP Lots.

The current capacity at the Lockheed Martin Fort Worth facility is 49 aircraft per year. Lockheed Martin's 2016 delivery commitment is 48 aircraft comprising of 24 F–35As, 19 F–35Bs, and 5 F–35Cs. The current Lockheed Martin Fort Worth 2016 delivery mix is F–35 A = 24 aircraft, F–35 B = 19 aircraft, and F–35 C = 5 aircraft. Production capacity will continue to grow (year over year) as we approach peak production demand. For example, at Lockheed Martin Fort Worth, maximum capacity will grow from 49 aircraft per year in 2016 to 65 aircraft per year in 2017.

The URF difference between a LRIP Lot 8 and Lot 13 is $24 million for each F–35A and F–35C. The URF difference is $27 million for each F–35B between these same two lots.

When you increase quantity for a given LRIP lot, you move further down the learning curve in that lot thus reducing the average cost per unit. If you reduce the quantity in a given lot, the opposite is true. Learning curve theory tells us that for every doubling of quantity, UFR will reduce by 5 percent. If applied to future year procurements, when you convert to Then Year dollars that include inflation, some of the reduction goes away because of the inflation impact.

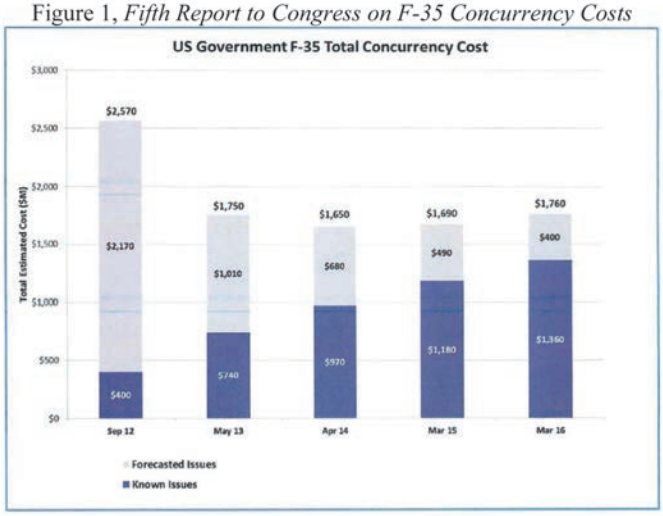
54. Senator INHOFE. Secretary Kendall and Lt. Gen. Bogdan, are there still concurrency issues with the F–35 production line? If yes, what are the costs?

Secretary KENDALL and Lt. Gen. BOGDAN. Concurrency within the F–35 System Demonstration and Development (SDD) phase remains a part of the program of record. Modifications to the configuration baseline will continue until the end of SDD, at which time the aircraft will be fully qualified.

Concurrency budgets are reducing in line with system maturity and are not adversely impacting the production line. Our latest concurrency analysis indicates the estimated average concurrency cost per aircraft has come down from approximately $26 million per aircraft at LRIP 1 to approximately $4 million per aircraft at LRIP 8, and it is estimated to be below $1 million per aircraft by LRIP 10. Additionally, as shown in Figure 1 of the April 2016 Concurrency Report to Congress (shown below), over 75 percent of the estimated concurrency costs are known issues and all issues will be known by the end of SDD.

Figure 1, Fifth Report to Congress on F–35 Concurrency Costs

Figure 1, *Fifth Report to Congress on F-35 Concurrency Costs*



55. SENATOR INHOFE. Secretary Kendall and Lt. Gen. Bogdan, how much savings could be achieved through a Block Buy Contract? What are the advantages and disadvantages? Is there a right time to execute a Block Buy Contract for this program?

Secretary KENDALL and Lt. Gen. BOGDAN. RAND Project Air Force performed an independent assessment and determined that savings on the order of $2.5 to $3.0 billion over 3 lots of aircraft (Lots 12, 13, and 14) can be achieved by providing 4 percent of aircraft cost as Economic Order Quantity funding in advance.

The advantages of a Block Buy Contract are increased savings over a single lot buy and supplier/program stability.

Disadvantages include possible reduction in savings due to configuration changes and aircraft quantity changes that drive the need to renegotiate. The Joint Program Office (JPO) intends to minimize this risk through contract language and a quantity floor that allows reduction in quantities without the need to renegotiate.

The JPO has assessed the Program's stability and determined the risk to starting a Block Buy in Lot 12 is low.

56. Senator INHOFE. Lt. Gen. Bogdan and Mr. Sullivan, I have seen numerous cost estimates regarding the life cycle costs for this program and I understand we are now estimating costs to operate over 60 years. How does the F–35 cost to operate over 60 years compare to other aircraft? Please provide the relative numbers for the B–52, the KC–135, and the F–16 and/or F/A–18 for a comparison?

Lt. Gen. BOGDAN. The F–35 program is the first aircraft program to estimate Operations and Support (O&S) costs over that extended length of time. The F–35's currently planned 30 years of procurement combined with a service life that could last 30 years make the F–35 O&S estimate unique and unprecedented in aircraft acquisition. The F/A–18 series was originally designed in the late 1970's to be operated for 6,000 hours, or about 20 years, and then be retired. We are currently flying F/

A–18A's with over 8,000 hours on the airframe. Similarly, the F–18E/F was also designed as a 6,000 hour/20 year aircraft. Rather than look at what the original estimate for a bomber, tanker, or tactical aircraft program was, then attempt to equate that with the current estimate for F–35, we are focused on reducing the costs to operate the F–35 and looking at all cost drivers that will lower those costs. The antecedent comparison in the F–35 Selected Acquisition Report (SAR) is useful in looking at how we are working toward reducing F–35 costs and comparing them with the aircraft that they will replace. The Cost-Per-Flight-Hour (CPFH) values for the F–16 and F–35A from the December 2015 and December 2011 F–35 SARs are shown below. The takeaway from this data is that F–35 CPFH estimates are coming down and the legacy CPFH is going up. It is not surprising that the F–16 costs are increasing as this is what we typically see as aircraft reach the end of their service life. The reduction in F–35 costs to operate are due to a combination of factors, which we will continue to assess, review, and validate as we continue to place more F–35 aircraft into operational service.

Costs FY 2012 $K

	F–35A	F–16C/D
December 2011 F–35 SAR	31.923	22.47
December 2015 F–35 SAR	29.806	25.54

Mr. SULLIVAN. From 2014 to 2015, DOD increased the life cycle of the F–35 program by six years from 53 to 59 years at a cost of an addition $1 billion over the life cycle. We have not conducted recent analysis to compare the costs of the F–35s to the B-52 and KC-135 nor have we conducted recent analysis comparing the new operating and supporting costs to other legacy aircraft. However, in 2014, we reported that the Cost Assessment and Program Evaluation (CAPE) office estimated that the combined costs to operate and sustain several legacy aircraft—the F15C/D, F–16C/D, AV–8B, and F–18A–D fleets-in 2010 exceeded $11 billion.[4] Based on CAPE's 2013 cost estimate, the annual cost to sustain the F–35 will be about $19.9 billion (in base year 2012 dollars) during its steady state. This $8.8 billion difference represents an increase of more than 79 percent in annual O&S costs for the F–35 as compared with the legacy aircraft CAPE examined.

FOREIGN PARTNERS

57. Senator INHOFE. Lt. Gen. Bogdan, what is the current status of international participation—countries that are or will be purchasing F–35s as well as countries who are or will be manufacturing aircraft parts as well as assembly locations around the world? How do these impact the overall program?

Lt. Gen. BOGDAN. [Deleted.]

SOFTWARE—AIRCRAFT AND ALIS

58. Senator INHOFE. Lt. Gen. Bogdan and Dr. Gilmore, what is your assessment of the current status of the Block 3i and 3F software?

Lt. Gen. BOGDAN. The Block 3i software is demonstrating the level of performance we expected at this point while also being approximately twice as stable as previously fielded blocks of software. Because of this performance, on April 28, 2016, I made the decision that the F–35 Program has completed all of the work needed for Block 3i, and I am recommending to the Secretary of the Air Force that Block 3i software is ready for United States Air Force Initial Operational Capability (IOC).

Block 3F software development and testing had been on hold while the program focused its energy on Block 3i. However, with the completion of Block 3i, the team can now focus all of the program's efforts on Block 3F. Block 3F is currently undergoing development and testing and is progressing towards becoming the delivered capability. However, the combination of delays due to the focus on Block 3i, along with some challenges experienced by the prime contractor in delivery of capability, has resulted in a risk of about a four to six months slip in schedule for final delivery. Because the program had some margin at the end of the development program, I do not believe that the currently-projected schedule slip will impact the United States Navy's IOC.

Dr. GILMORE. Block 3i software was designed to simply enable the limited Block 2B mission systems capabilities, implemented using the F–35's original processing hardware, to work on the upgraded Technical Refresh 2, or TR2, hardware used in

[4] GAO, F–35 Sustainment: Need for Affordable Strategy, Greater Attention to Risks, and Improved Cost Estimates, GAO-14-778 (Washington, D.C.: September 23, 2014).

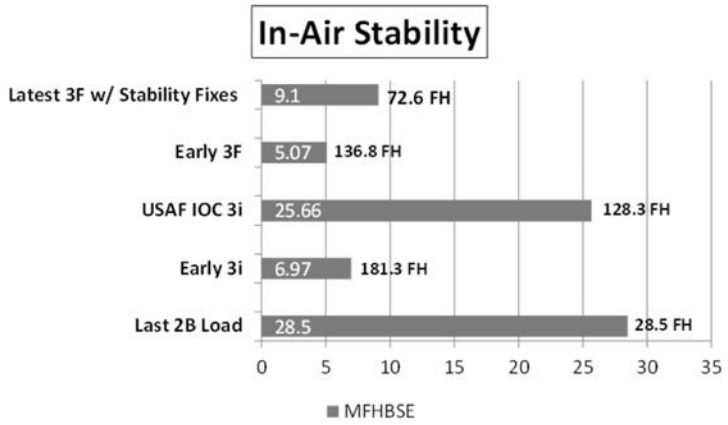
the production of Lot 6 and later aircraft. An early version of Block 3i software was delivered in October 2014, when the Air Force accepted its first Lot 6 aircraft, although the capabilities this version provided were very limited and mission systems stability proved to be significantly worse than Block 2B. Subsequent versions of the software have undergone flight testing and fielding, the latest version having completed developmental testing at the end of April (referred to as 3iR6.21). The program recently completed an abbreviated flight test of Block 3iR6.21 and is conducting analyses of the stability of the mission systems to see if it is adequate to field to operational units and to be the final Block 3i build of software which would support the Air Force decision to declare initial operational capability (IOC). Initial indications are that the latest version of Block 3i has improved the stability of mission systems performance in-flight significantly relative to previous versions. However, pre-flight stability issues persist, and the status of the correction of the other deficiencies cited in my written testimony, a number of which have been characterized as "must-fix" by the Air Force, is unknown to DOT&E.

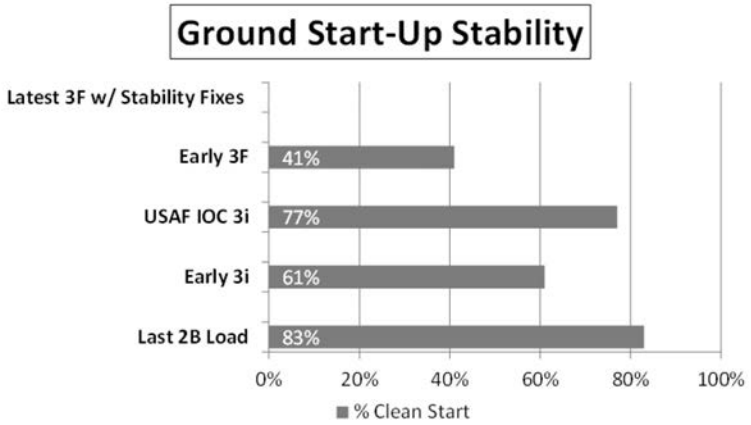
Block 3F software development was paused in February this year when the latest version of Block 3F software—version 3FR5 –was so unstable that productive flight testing could not be accomplished. To fix the stability problems, the program reverted to Block 3i development and flight testing, and just recently restarted flight testing with an updated version of Block 3FR5 software that incorporates the new stability fixes from Block 3iR6.21. The program plans to release to flight testing the last build of Block 3F software that adds capability—3FR6—later this summer, then complete two more builds—3FR7 and 3FR8—to address problems expected to be discovered during testing. The efficiency in accomplishing test points during flight test may be improved from what was seen earlier in CY16, if the stability fixes completed in Block 3i and many critical deficiency fixes are realized in Block 3F. Delivering and testing the numerous new and advanced capabilities planned to be in Block 3F mission systems, which are specified in the program's Operational Requirements Document (ORD), presents significant challenges for remaining development and flight test. As of the end of April, over 80 percent of the baseline test points in the Block 3F test plans remained to be completed.

59. Senator INHOFE. Lt. Gen. Bogdan and Dr. Gilmore, has the cause of the Block 3i and 3F software instability been identified? If yes, what is the fix?

Lt. Gen. BOGDAN. I believe the program has identified the root cause of stability problems in Block 3i and Block 3F software. The cause was traced to the timing of software messages from the sensors to the main F–35 fusion computer. A mismatch in timing of different messages would cause the system to repeatedly reboot, and we addressed this issue through changes in the timing of certain messages. We have tested the solution in a lab environment and in-flight test, and the fixes were successful. At the completion of developmental flight testing of the fixes, the system was demonstrating stability that was two times better than previously-fielded versions of software and four times better than prior to application of the fixes. The updated version of Block 3i software has been released to the operational fleet, and we incorporated the stability fixes in the Block 3F software, which is supporting flight test. However, as integration of new capabilities in the Block 3F software continues, we can expect to find more issues that could potentially affect stability. This is a normal part of the development cycle, and we will address any new issues that arise prior to the final fielding of Block 3F software.

The graphics below show before and after stability fixes data for in-air mean flight hours between stability events and ground clean start-up rates.





Dr. GILMORE. The program made corrections to address instability in the latest version of Block 3i mission systems software, Block 3iR6.21, and recently completed flight testing at the end of April. The program and test centers are currently analyzing the results of the flight testing—particularly the stability—and will determine whether another software build will be required prior to fielding. It appears that Block 3iR6.21 has significantly improved in-flight stability; nonetheless there are still system start-up problems that frequently delay takeoffs and it remains to be seen if there are any new problems caused by the software changes. Whether this version is fielded, or another version is built, flight tested, and fielded, the Air Force plans to declare initial operational capability later this year with Block 3i software, which will provide essentially the same, limited combat capability of the Block 2B software.

60. Senator INHOFE. Lt. Gen. Bogdan and Dr. Gilmore, have you made changes to how software updates are released and fielded? How will that improve software reliability, testing, training and operations?

Lt. Gen. BOGDAN. The F–35 Joint Program Office (JPO) continues to place strong emphasis on fielding a quality product to the Warfighter to support the full range of operations. In order to ensure that the final version of software delivered in the System Development and Demonstration program meets all of the documented requirements, I have modified how software updates are released and fielded. Rather than following a schedule-driven process to drive capability to the field, the JPO is

now following a more event-based process to ensure that no capabilities are left behind. I am holding the line on software deliveries—I will not release to the fleet the software build that has been targeted for full capability without that build, in fact, having all capability, even if that means slipping schedule to ensure we have the full complement of capabilities.

Additionally, I have encouraged the development team to quickly turn incremental engineering test builds to mature specific capabilities prior to final release of software to flight test, and the JPO is also using ground testing to facilitate earlier discovery and to supplement lab testing. To support getting capability to the Warfighter sooner, I have provided early releases of Block 3F software to support preparations and training for the Operational Test fleet.

The JPO continues work to improve software reliability by ensuring that the software has full capability and is stable before it is released to the field. Additionally, stable software with full capability will improve how quickly and efficiently flight tests are executed. For the Warfighter, stable software with full capability improves the quality and quantity of training and operations.

Dr. GILMORE. The stability and functionality problems in the initial versions of Block 3F that were provided to flight testing early this year, including those inherited from Block 3i and problems caused by new Block 3F capabilities, were so significant that the program could not continue flight test. As a result, the program recently announced a shift to capability-based software releases, rather than schedule-driven, overlapping releases. While this may cause delays relative to the current, unrealistic schedule, I agree with the program's decision to shift to a serial process of flight testing and fixing software in the lab before releasing the next software version, and the recent improvements observed in Block 3i stability validate this serial approach. Based upon the improved version of Block 3i, the program recently released an updated version of Block 3FR5 software to flight test in April and, after incorporating fixes to the deficiencies discovered during the remainder of this re-started testing, the program plans to release Block 3FR6 later this summer. If the fixes to stability achieved in the latest Block 3i software continue to reduce the need for avionics resets in flight, without unintended consequences, mission systems testing and weapons releases can resume in earnest and the test point completion rate will increase, which is essential given the significant amount of testing and limited time that remains before initial operational test and evaluation.

61. Senator INHOFE. Lt. Gen. Bogdan and Dr. Gilmore, what impact will these software issues have on Air Force reaching IOC by its threshold date of December 2016?

Lt. Gen. BOGDAN. The Block 3i software is demonstrating the performance we expected at this point while also being approximately twice as stable as previously fielded blocks of software. Because of this performance, on April 28, 2016, I made the decision that the F–35 Program has completed all of the work needed for Block 3i, and I am recommending to the Secretary of the Air Force that Block 3i software is ready for United States Air Force Initial Operational Capability (IOC). This software has been released to the operational fleet, which meets the USAF requirement to declare IOC by December 2016.

Dr. GILMORE. The decision to declare Initial Operational Capability (IOC) is one made by the individual Services. The Air Force is conducting an accelerated IOC Readiness Assessment to help inform their decision on when to declare IOC; however, no formal operational test and evaluation of the Block 3i set of capabilities is planned. To the extent that software stability has improved in flight, the Block 3i configuration may support the Air Force requirements for IOC before the end of calendar year 2016. Similar to the Marine Corps' IOC declaration in July 2015 with F–35B aircraft in the Block 2B configuration, the capabilities of the Block 3i-configured F–35A aircraft will be limited if called upon to be used in combat.

62. Senator INHOFE. Lt. Gen. Bogdan and Dr. Gilmore, what are the key obstacles to beginning IOT&E in August 2017? What actions can be taken to mitigate those obstacles? Is August 2017 for OT&E start achievable?

Lt. Gen. BOGDAN. The F–35 Joint Program Office (JPO), in coordination with the Service Operational Test Agencies (OTA), the Joint Strike Fighter Operational Test Team (JOTT), and other Initial Operational Test and Evaluation (IOT&E) stakeholders, has identified six key areas that present significant challenges to the beginning of IOT&E. These and the mitigating strategies follow:

1) Providing sufficient test aircraft: The JPO worked with the JOTT, the Services, and International Partners to develop a course of action that reduced the number of required aircraft from 25 to 23 and modifies some earlier LRIP Lots 3, 4, and

5 aircraft to the Lot 9 configuration. This approach was fully vetted and accepted by the U.S. Services and International Partners.

2) Software and weapons capability: IOT&E requires use of the final Block 3F software and full Block 3F weapons capability and envelope. To provide as much capability as soon as possible, the JPO is planning a May 2017 Block 3F software release to the fleet. Additionally, early versions of Block 3F software will be released to Operational Test (OT) to enable familiarization, early feedback to JPO, and spin-up activities.

3) Mission Data File (MDF): The United States Reprogramming Lab (USRL), which develops the MDF, is currently projecting an initial MDF delivery in February 2017 and the final MDF delivery, required for IOT&E, in August 2017. To mitigate this schedule, USRL will use earlier versions of Block 3F software to complete preliminary work. This allows for quicker development of the MDF when the final Block 3F software is released.

4) Simulation. Testing the full capability of the F–35 within the limits of existing ranges against air and surface threats will be difficult. The use of a validated, high-fidelity simulation incorporating both the F–35 as well as advanced threats can improve our ability to judge the effectiveness of the weapon system in a broader environment and provide recommendations to the Warfighters on tactics and issues. The initial plan was to use a Lockheed Martin developed F–35 multi-ship, real-time, Manned Tactical Simulator based representation of the F–35 air vehicle designed to replicate a high-density simulation environment not available on open-air ranges, similar to the system used by the F–22. However, Lockheed Martin was behind schedule and over budget, and this solution had limited room for future growth. In 2015, the program made a strategy change to have the Government develop an open-system simulation environment that will endure beyond Block 3F testing while Lockheed Martin maintains a focus on delivering the F–35 specific simulation. This hybrid is called the Joint Simulation Environment (JSE) and is being developed cooperatively by the U.S. Navy, U.S. Air Force, and Lockheed Martin so the skill sets of industry and Government are leveraged for long-term sustainment of the end product. The risk to IOT&E due to the strategy shift to JSE is the same as would have been present had the original Lockheed Martin proprietary strategy been maintained, and is principally schedule. To mitigate this, JSE will be delivered to the JOTT incrementally to allow early trial use and feedback from OT, and full capability is planned for mid-calendar year 2018, which will be in time to support test events toward the latter part of IOT&E. As a further mitigation, the JOTT has increased some open-air test events to gather specific information that would otherwise be developed using the simulated environment. Given what we know of the JOTT planning, JSE will not prevent the start of IOT&E flight testing if the simulation is not available at the beginning of IOT&E.

5) Autonomic Logistics Information System (ALIS): IOT&E is planned to begin with ALIS 2.0.2 and then upgrade to ALIS 3.0 (the final version of ALIS) upon its release in spring 2018.

6) Air-to-Air Range Infrastructure II (AARI2): AARI2 flight test is currently scheduled for summer 2016, and recent lab tests indicate it will meet IOT&E performance requirements. However, the range is projected not to be ready to support IOT&E until winter 2018.

In addition to the mitigations listed above, the JOTT is working on a phased entry into IOT&E. This approach allows the JOTT to conduct portions of the test when entrance requirements for those portions, but not necessarily the full test entrance requirements, have been met. For example, the JOTT can conduct much of the Close Air Support testing without going above 1.3 Mach, without AARI2, and with ALIS 2.0.2. This approach will allow the JOTT to conduct as much testing as soon as possible.

Dr. GILMORE. As I stated in my testimony, the current plan to complete development and enter IOT&E by August 2017 is unrealistic. Several obstacles must be overcome before IOT&E can begin. These include:

- Completion of Block 3F development. The program has completed less than 20 percent of the baseline Block 3F test points as of the end of April 2016. Completing the remaining nearly 4,200 baseline points will not occur until the end of January 2018, based on historical test point burn rates.
- Weapons integration. Much of the weapons testing remains, particularly to support the additional weapons being brought on with Block 3F (SDB, JSOW, AIM–9X, and the gun)
- Modifications to operational test aircraft. The operational test aircraft must be production-representative and have the required instrumentation called for in the Test and Evaluation Master Plan (TEMP). Modifying the currently designated fleet of operational test aircraft to the Block 3F configuration would ex-

tend beyond August 2017. Although the requirement to modify these aircraft has been known for years by the program and Lockheed-Martin, adequate plans were not made to accommodate these modifications. For example, all of the operational test aircraft need the Tech Refresh 2 (TR2) processors, which have been included in the production aircraft since Lot 6 aircraft were delivered in late 2014, but TR2 processors for retrofitting the OT aircraft were not ordered in time to support completing modifications prior to August 2017.

- Mission data. The programming lab that provides mission data needs to be upgraded to provide adequate, optimized, and tested mission data files for IOT&E; upgrades that have yet to be put on contract. As a result, the signal generators needed to adequately test the mission data loads will probably not arrive until 2019 at the soonest, causing risk to F–35 avionics performance during IOT&E and in combat.
- Sustainment. The program set a target of 60 percent aircraft availability for the fleet as an objective at the end of CY14, but has yet to reach that goal. To efficiently complete the mission trials during IOT&E, most of which will require 4-ship formations of a single variant (out of 6-aircraft fleets of each US variant), the program will need to have an availability of approximately 80 percent, which is consistent with the availability that will be needed to support actual combat operations. Improvements in reliability and maintainability, along with significant improvements to ALIS, are all needed.

63. Senator INHOFE. Lt. Gen. Bogdan, what is the current status of ALIS and its ability to support F–35 operations from home station and while deployed? What actions are being taken improve ALIS?

Lt. Gen. BOGDAN. The Standard Operating Unit Version 2 (SOUv2) hardware, initially fielded to support United States Marine Corps Initial Operational Capability in July 2015, provides a more deployable version of Autonomic Logistics Information System (ALIS). This new hardware is ruggedized, modular, and an alternative to the original large server rack design. The Marine Corps and Air Force have successfully used the SOUv2 in several deployment exercises, and the Joint Program Office has received positive feedback on the deployability of ALIS.

Dr. GILMORE. ALIS has supported operational and training units since early production aircraft were accepted by the Services in 2011. Although deficiencies in ALIS have made it difficult to efficiently support F–35 operations, continued development and releases of ALIS software updates have led to improvements. The program is attempting to address the functionality and usability deficiencies with quarterly service pack updates, which they began to field in January 2016. Two major software releases, ALIS 2.0.2 and 3.0.0, are planned before completion of F–35 SDD, but the schedule to deliver the planned capability requirements for each of these releases is high risk. As noted in my annual report, the program has previously deferred capability content of ALIS software releases (i.e., ALIS 2.0.1 planned for Marine Corps IOC) to meet schedule; this pattern of behavior cannot be sustained through the rest of SDD. Completing the development, adequate testing, and fielding of the capabilities planned for ALIS 3.0.0 before the end of SDD is high risk. ALIS 3.0.0 is required prior to the start of IOT&E; however, progress has been limited as the program is still struggling to deliver planned ALIS 2.0.2 functionality, which the program now says is at least 60 days late.

As stated in my testimony, Service-led deployments over the past year have revealed challenges in setting up and supporting flight operations at forward locations. The fielding of the modularized version of the Standard Operating Unit (SOU) has allowed the Marine Corps and Air Force to conduct deployment demonstrations during which they moved ALIS hardware to a deployed location. However, they discovered difficulties in either building a network to support deployed operations or in integrating ALIS into an existing network. Transferring aircraft data between the home station and the deployed SOU, which is necessary to support deployed flight operations, does not function seamlessly within ALIS, as it was designed, but often requires manual updating or corrections to data files after a transfer has occurred. ALIS is a multi-level security system with particular infrastructure requirements to support high levels of server activity and data movement. Additionally, the program has not yet completed comprehensive deployability tests in a shipboard or overseas operating environment. ALIS currently has no hardware redundancy, so if the Central Point of Entry (CPE) at Eglin AFB, Florida or ALIS main operating unit at Fort Worth, Texas experience some type of failure, the entire F–35 fleet would need to operate offline until functionality is restored. While the program has made provisions for ALIS to operate offline, it would compromise some ALIS functionality such as supply chain management.

The F–35 program is aware of these ALIS deficiencies, but it is still unclear if the program has a plan to prioritize and address them within the remaining SDD timeline.

64. Senator INHOFE. Lt. Gen. Bogdan and Dr. Gilmore, what is the status of ALIS version 2.0.2 and how will it impact Air Force IOC?

Lt. Gen. BOGDAN. The Autonomic Logistics Information System (ALIS) 2.0.2 software release has experienced challenges with the integration efforts between the Pratt & Whitney and Lockheed Martin enterprise systems that will support the overall management of the F135 engine system within ALIS. We are working through those issues and expect that full 2.0.2 capability will be available for fielding prior to the end of December 2016.

It is important to note that United States Air Force (USAF) Initial Operational Capability (IOC) is not fully dependent on ALIS 2.0.2 delivery. The USAF requirement for IOC with respect to ALIS is that the system be able to support deployed combat operations. The decision as to which version of ALIS is adequate for deployed operations is a USAF decision.

Dr. GILMORE. ALIS version 2.0.2, which is planned to support Air Force IOC, is expected to upgrade earlier versions by adding functionality to some of the embedded capabilities and introducing the first phase of life-limited parts management, the latter of which includes propulsion integration. Propulsion data are currently downloaded and tracked separately by Pratt and Whitney during post-flight maintenance activities, but ALIS 2.0.2 should allow the propulsion data to be downloaded and processed simultaneously with the rest of the air vehicle data.

The program is facing delays in the release of ALIS 2.0.2 primarily due to difficulties with propulsion integration. The latest program estimates show a 60- to 90-day delay fielding the 2.0.2 release, resulting in delivery to Hill AFB in October 2016, vice August 2016 as previously planned. Delivery of ALIS 2.0.2 later this year might still support an Air Force IOC declaration by the end of the year. However, the Air Force may choose to declare IOC without fielding ALIS 2.0.2, or accept an interim version of ALIS 2.0.2 without the additional capabilities and/or with known deficiencies.

65. Senator INHOFE. Lt. Gen. Bogdan, what actions are you taking to ensure both the F–35 and ALIS do not have cyber-vulnerabilities?

Lt. Gen. BOGDAN. We are continuing to implement the necessary Information Assurance controls and testing required by the Department and the individual Services to allow Autonomic Logistics Information System (ALIS) to be connected to the U.S. Air Force, U.S. Marine Corps, and U.S. Navy networks. The Joint Operational Test Team (JOTT) is now performing Adversarial and Vulnerability Cyber Testing on the ALIS and will continue this over the next year and a half. This testing will inform us of any deficiencies that may need to be addressed to mitigate risks of malicious attacks. Finally, we have contracted for backup hardware for key elements of the ALIS that we will be installing later this year in different geographic areas. This effort will eliminate single points of failure and mitigate risks from cyber-attacks and natural disasters.

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