

**DEPARTMENT OF DEFENSE AUTHORIZATION FOR
APPROPRIATIONS FOR FISCAL YEAR 2018 AND
THE FUTURE YEARS DEFENSE PROGRAM**

HEARINGS

BEFORE THE

**COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE**

ONE HUNDRED FIFTEENTH CONGRESS

FIRST SESSION

ON

S. 1519

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2018 FOR MILITARY
ACTIVITIES OF THE DEPARTMENT OF DEFENSE, FOR MILITARY CON-
STRUCTION, AND FOR DEFENSE ACTIVITIES OF THE DEPARTMENT OF
ENERGY, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR
SUCH FISCAL YEAR, AND FOR OTHER PURPOSES

PART 3

READINESS AND MANAGEMENT SUPPORT

FEBRUARY 8 AND MARCH 29, 2017



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**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2018 AND THE FUTURE YEARS DEFENSE
PROGRAM**

WEDNESDAY, FEBRUARY 8, 2017

U.S. SENATE,
SUBCOMMITTEE ON READINESS
AND MANAGEMENT SUPPORT,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

THE CURRENT READINESS OF U.S. FORCES

The subcommittee met, pursuant to notice, at 2:31 p.m. in Room SR-232A, Russell Senate Office Building, Senator James Inhofe (chairman of the subcommittee) presiding.

Subcommittee members present: Senators Inhofe, McCain, Rounds, Ernst, Perdue, Kaine, Shaheen, and Hirono.

OPENING STATEMENT OF SENATOR JAMES INHOFE

Senator INHOFE. I call the meeting to order.

Let me share a couple of thoughts with you. Twenty-two years ago I became the chairman of this committee, and I haven't since that time, because under the rules on the Republican side, if you chair and are a ranking member in another committee, you can't chair a subcommittee. This is really the committee where really everything is happening. The problems that we're facing today are the ones that we deal with, so Tim and I are going to do a good job with that, Joni and the rest of the committee.

The committee meets for the first time in the new session of Congress to receive testimony from you guys. I don't think there's a member of this committee that hasn't read what happened yesterday. I know I have.

We're joined by the same group. We have all the vices here, General Allyn, Admiral Moran, General Walters, and General Wilson. I appreciate your sticking to this one more time here.

Last week General Mattis used the guidance on the administration's plan to rebuild and strengthen our Armed Forces. I looked at some of the things that were said yesterday, some of the quotes, and I really do appreciate the fact that you folks came out and said things that weren't easy to say. We had General Allyn talking about the Army. Only 3 of 58 brigade combat teams are ready to fight. We had General Wilson talked about the hollow force, actually used the term "hollow force." That's what we're faced with

right now. A lot of the characteristics that we, who are old enough to remember it, remember from the Carter administration, know what we had to do the following years. That's very similar to what we are going to have to do now. We had General Walters. You talked about the operational tempo is as high as it was during the peak of the Iraq and Afghanistan wars. We know the problems that are out there.

While I didn't always get along perfectly with Hagel when he was in the Senate, and I wasn't one of his strongest supporters when he came into being the Secretary of Defense, when I read the statements that he has made from that position, it's a wake-up call to the American people because otherwise they don't know, they're not exposed to this.

This is what he said, quote, "American dominance on the seas, in the skies, and in space can no longer be taken for granted." This is something we want to address, we want to accept as a reality. We're going to have to improve our readiness, achieve a balance in addressing shortfalls, and build a larger and more capable and more lethal joint force. Those are the statements that were made, the three priorities that were given to this committee, the major committee, just a week or so ago.

We have a lot of these problems that we're going to be dealing with. During Secretary Mattis' nomination hearing he stated that we are going to have to increase operation and maintenance funding while adapting to strengthening our military as the situation dictates. This means additional resources are needed, and what I'd like from our witnesses today is an outline of how you plan to restore the readiness to our Armed Forces and how we re-grow our force, how do we maintain the equipment that has been through 2 decades of war, and how do we train that force to meet the national security requirements.

This is the committee where most of the action is going to be, and we've got a lot of work to do, and Tim and I have already talked about this. We're going to see to it that we start getting a bigger attendance here and that we start addressing these problems that we should be addressing before they hit the major committee.

Senator Kaine?

STATEMENT OF SENATOR TIM KAINE

Senator KAINE. Thank you, Mr. Chairman. You've done a better job arm twisting on your side of the table than I have.

Senator INHOFE. Yes, I guess so.

Senator KAINE. I have to up my game here.

Welcome to the witnesses. This is an interesting hearing. The witnesses—did you know this, Mr. Chair? Our 4 witnesses have a combined 142 years—

Senator INHOFE. No, I didn't know that.

Senator KAINE.—of combined military experience. That means I know we're only going to hear the most astute wisdom today.

There is a limit to what we can discuss in open session. I'd just say at the start that all colleagues on the committee are encouraged to read the classified readiness reporting that is available to members of this subcommittee.

I am pleased to be the ranking. I work very, very well with the Chairman. We've got a good relationship, and I know this subcommittee will continue the bipartisan tradition that is its norm.

The military does suffer from an unacceptable level of readiness. I said to the Chair as we walked in that some of what we'll hear today we heard last year, and we heard two years ago. Somebody said maybe if we listened, history wouldn't have to repeat itself.

The first step we ought to take to address this vulnerability is to provide more predictable and stable funding for men and women in uniform. The new administration has made some comments about spending that I agree with, a desire to boost military spending and repeal sequestration for the DOD [Department of Defense]. We haven't heard the same commitment with respect to repealing sequestration for the whole government. The chairman of this committee, Chairman McCain, put out a report suggesting that should be done, and even if your focus is specifically on national security, it's still very important that sequestration, we look at it not just on the DOD accounts but on the whole of government, because whether we're talking about Homeland Security, State, the DEA [Drug Enforcement Agency], the nuclear reactor portion of what the Department of Energy does, there are so many things in the non-defense discretionary side that really are integral to our security challenges.

We've got the responsibility to help DOD restore readiness as soon as possible. We'll be getting good information that we can use as information to persuade our colleagues of this.

I am concerned about one recent development, the hiring freeze that was issued on January 23rd for Federal civilian employees. It was not a permanent hiring freeze. It was a temporary hiring freeze to analyze what should be done, and I hope it is, in fact, temporary because this does have a readiness impact on shipyards, depots, air logistics centers, but also on other Federal agencies because the Federal agency is certainly the employer of choice for veterans. When you do a hiring freeze at the Federal level, it falls most disproportionately on the veterans that are hired so significantly into the Federal Government.

At a time when we're losing shipyard depot workers and others to retirement and sequestration-related attrition, I'm afraid that a freeze like this, if it continues, could really hurt us both on the readiness side and be unfavorable to our veterans.

I am pleased in hearing from our witnesses today about plans to rebuild readiness and what exactly does a fully funded ready force look like. Each service branch has its own measures of readiness, and some of the most interesting discussions we've had in these hearings in the past is exactly what does a readiness measure mean. I used to say as governor I can measure everything, but the one thing that scared me was measures of emergency readiness. I can measure an unemployment rate, I can measure a graduation rate, but what was the measure for what we would do if there was a hurricane tomorrow? Those measures are tough, and the need for the committee to understand exactly how we measure the readiness in the different branches is very important.

I understand the hearing today from the Air Force, they would like to increase the number of fighter squadrons from 55 to 60.

What are the research requirements we have to grapple with in the committee and those who are on budget and appropriations to get to that? What's the appropriate timeframe that we should be looking at to make that kind of advance?

This committee also deals with MILCON [military construction] and facilities sustainment, and these are important matters to readiness too. When we talk about increasing military spending, I do think that there is this area where we can do better, and that's increasing the O&M [operation and maintenance] funding for facilities sustainment, restoration, and modernization [FSRM]. We'll be getting into some testimony that I'm really interested in on the shipbuilding side. As a general matter, if we're resource pressed and we end up having fewer facilities, then it becomes even more important if we have fewer that we maintain those we have to a higher level. That's not necessarily what we're doing now in the MILCON area or in purchasing platforms.

Our installations for a long time have had to defer necessary maintenance, and if we don't address backlogs soon, it just leads to higher long-term costs and risks that decrease the quality of life for our troops. I hope we can look at the FSRM accounts, increase as much as possible in the fiscal year 2018 NDAA [National Defense Authorization Act]. I hope we can increase military construction across the Active and Reserve components. If we can increase those two accounts in particular, we not only improve the readiness in installations in every state, it would also bolster the resiliency of facilities, and we need to work together to make this happen.

One area that's important to me and I know important to the Chairman, we have some slight differences on it, but it's the area of energy. DOD is the largest user of energy in the Federal Government, and I support the military's effort to invest in technologies and alternative sources that not only improve readiness but increase combat capabilities by extending range, endurance, lethality, and energy resilience for our installations, and especially in some ways for forward operating bases.

Whether DOD is confronting cyber threats or vulnerabilities in its energy supply or protecting against severe weather events, from a readiness perspective we've got to make sure that we make the investments in energy resiliency, and we did those in section 2805 in the 2017 NDAA, and I hope we will continue to do that.

Mr. Chairman, thanks again for today's hearing, to start this discussion that will roll up into the NDAA work that we will do as a full committee. I'm excited to work with you as the ranking on this committee and very gratified that we have the witnesses here today.

Senator INHOFE. Well, thank you. Thank you, Senator Kaine.

It will be easy for you guys because you can use the same opening statements you used yesterday, if you want to.

[Laughter.]

Senator INHOFE. We want to hear it, and we want to get it on record. Some of the things were very bold statements that were made. It's worth repeating because this is for our record over here. We're going to be very aggressive trying to make the changes necessary to bring our defenses up, so feel free to do it.

We'll start with you, General Allyn. Try to keep it down somewhere around 5 minutes, all right?

STATEMENT OF GENERAL DANIEL B. ALLYN, USA, VICE CHIEF OF STAFF

General ALLYN. Thank you, Chairman Inhofe, Ranking Member Kaine, distinguished members of the subcommittee. Thank you for the opportunity to testify on the readiness of your United States Army. I appreciate your support and demonstrated commitment to our soldiers, civilians, families, and our veterans, and look forward to discussing the strength of our Army with you today.

This is a challenging time for our nation, and certainly for our Army. The unipolar moment is over, and replacing it is a multipolar world characterized by competition and uncertainty. Today, the Army is globally engaged with more than 182,000 soldiers supporting combatant commanders in over 140 worldwide locations.

My recent travel—I have visited our soldiers in 15 countries since Veterans Day—reinforces that the Army is not about programs; it is about people, our people executing security missions all around the globe. The strength of the all-volunteer force truly remains our soldiers. These young men and women are trained, ready, and inspired. We must be similarly inspired to provide for them commensurate with their extraordinary service and sacrifice.

To meet the demands of today's unstable global environment and maintain the trust placed in us by the American people, our Army requires sustained, long-term, and predictable funding. Absent additional legislation, the caps set by the Budget Control Act of 2011 will return in fiscal year 2018—that would be October of this year—forcing the Army to once again draw down end strength, reduce funding for readiness, and increase the risk of sending undertrained and poorly equipped soldiers into harm's way, a preventable risk our nation can and must prevent.

We thank all of you for recognizing that plans to reduce the Army to 980,000 soldiers would threaten our national security, and we appreciate all your work to stem the drawdown. Nevertheless, the most important actions you can take, steps that will have both positive and lasting impact, will be to immediately repeal the 2011 Budget Control Act and ensure sufficient funding to train, man, and equip the fiscal year 2017 NDAA authorized force.

Unless this is done, additional topline and OCO [overseas contingency operations] funding, though nice in the short term, will prove unsustainable, rendering all your hard work for naught. In this uncertain environment, readiness remains our number-one priority. Sufficient and consistent funding is essential to build and sustain current readiness, progress towards a more modern, capable force, sized to reduce risk for contingencies, and to recruit and retain the best talent within our ranks.

Readiness remains paramount because the Army does not have the luxury of taking a day off. We must stand ready at a moment's notice to defend the United States and its interests. With your assistance, the Army will continue to resource the best trained, best equipped, and best led fighting force in the world.

We thank you for your steadfast support of our outstanding men and women. Please accept my written testimony for the record, and I look forward to your questions.

[The prepared statement of General Allyn follows:]

PREPARED STATEMENT BY GENERAL DANIEL ALLYN

INTRODUCTION:

Chairman Inhofe, Ranking Member Kaine, distinguished Members of the Subcommittee, thank you for the opportunity to testify on the readiness of your United States Army. On behalf of our Acting Secretary, the Honorable Robert Speer, and our Chief of Staff, General Mark Milley, thank you for your support and demonstrated commitment to our soldiers, Army civilians, families, and veterans.

To meet the demands of today's unstable global security environment and maintain the trust placed in us by the American people, our Army requires *sustained, long term, and predictable funding*. Absent additional legislation, the caps set by the Budget Control Act of 2011 will return in fiscal year 2018, forcing the Army to once again draw down end strength, reduce funding for readiness, and increase the risk of sending under-trained and poorly equipped soldiers into harm's way—a preventable risk our Nation must not accept. We all thank you for recognizing that plans to reduce the Army to 980,000 soldiers would threaten our national security, and we appreciate all your work to stem the drawdown. Nevertheless, the most important actions you can take—steps that will have both positive and lasting impact—will be to immediately repeal the 2011 Budget Control Act and ensure sufficient funding to train, man and equip the fiscal year 2017 NDAA authorized force. Unless this is done, additional top-line and OCO funding, though nice in the short-term, will prove unsustainable, rendering all your hard work for naught.

This is a challenging time for our Nation and certainly for our Army. The unipolar moment is over, and replacing it is a multi-polar world characterized by competition and uncertainty. Today, the Army is globally engaged with more than 182,000 soldiers supporting combatant commanders in over 140 worldwide locations. To break this down a bit: Over 5,000 soldiers are in the Middle East supporting the fight against ISIL, a barbaric enemy intent on destabilizing the region and the globe. Nearly 8,000 more remain in Afghanistan, providing critical enabling support to Afghan National Security forces fighting a persistent insurgent threat. Over 33,000 are assigned or allocated to Europe to assure our Allies and deter a potentially grave threat to freedom. Nearly 80,000 are assigned to PACOM [U.S. Pacific Command], including nearly 20,000 soldiers on the Korean peninsula, prepared to respond tonight with our ROK [Republic of Korea] allies. At the same time thousands of soldiers are operating across Africa and Central and South America, along with thousands more preparing right here in the United States. At home and around the world, your Army stands ready.

My recent travel—I have visited our soldiers in 15 countries since Veterans Day—reinforces that all this is not about programs ... it is about people ... our people executing security missions for all of us around the globe. In fact, the strength of the All Volunteer Force truly remains our *soldiers*. These young men and women are trained, ready and inspired. We must be similarly inspired to provide for them commensurate with their extraordinary service and sacrifice.

READINESS: MANNING, TRAINING, EQUIPPING/SUSTAINING AND LEADER DEVELOPMENT

Readiness remains our number one priority. Sufficient and consistent funding is essential to build and sustain current readiness, progress towards a more modern, capable force sized to reduce risk for contingencies, and recruit and retain the best talent within our ranks. A ready Army enables the Joint Force to protect our Nation and win decisively in combat. Unfortunately, fifteen years of sustained counter-insurgency operations have degraded the Army's ability to conduct operations across the spectrum of conflict and narrowed the experience base of our leaders. The current global security environment demands a shift in focus to support Joint operations against a broader range of threats. In this uncertain world, combined arms maneuver, which enables the Joint Force to deter, deny, compel, and defeat peer competitors and execute hybrid warfare, represents the benchmark by which we measure our future readiness.

MANNING:

The Total Force remains globally engaged with the Army set to meet nearly half—48 percent—of combatant command base demand and forecast to meet over two-thirds—70 percent—of emergent demand for forces in fiscal year 2017. This trend, exacerbated by end strength reductions and increasing global requirements, has been consistent for the past three years and promises to continue. Looking ahead, any potential future manpower increases to reduce military risk related to Defense Planning Guidance and National Military Strategy requirements, must be coupled with commensurate funding to ensure the long-term strength of the force.

At today's end-strength, the Army risks consuming readiness as fast as we build it. To alleviate some of the burden, we are reallocating and reorganizing existing force structure and leveraging the Total Force to meet operational demand. For example, recognizing the importance of assuring our Allies and deterring our adversaries, last month $\frac{3}{4}$ Armor Brigade Combat Team (ABCT) began heel-to-toe rotations in Europe. This unit, representing a permanent armored presence, enables our forces to exercise deployment systems and processes while simultaneously demonstrating the United States' commitment to the region. This ABCT deployment will be followed shortly by a rotational heel-to-toe Combat Aviation Brigade to Europe to provide aviation capacity and capability in that important part of the world. We will also begin Heavy Aviation Reconnaissance Squadron rotations to Korea, reestablishing full Combat Aviation Brigade capacity and capability on the peninsula.

In fiscal year 2018 we will adjust our brigade combat team force mix by converting an Active Army Infantry Brigade Combat Team into an Armor Brigade Combat Team, marking the creation of our 15th ABCT. This increased armor capacity will provide much needed flexibility to meet extant threats around the globe. We will also build two Security Force Assistance Brigades (SFABs), one in the Active Army and one in the Army National Guard in fiscal year 2018 followed by another Active Component SFAB in fiscal year 2019 to better support our partners and preserve BCT readiness. These SFABs will also serve as the backbone of new brigades if the Army is ever called to rapidly expand.

To address mounting challenges in the cyber domain, the Army is building 41 Cyber Mission Force teams. Currently, 30 of the Army's 41 teams are at full operating capability (FOC), and 11 more will achieve FOC by fiscal year 2018. In addition, the Reserve Component is building 21 Cyber Protection Teams, with 11 teams in the Army National Guard and 10 teams in the Army Reserve.

The Army has increased operational use of the Army National Guard and the Army Reserve to support Joint Force requirements around the globe, and this trend will continue. Today, three Army National Guard Division Headquarters, along with numerous other formations, are supporting geographic combatant commanders here at home and around the world. With the support of Congress, the Army can maintain the appropriate force mix and Total Force readiness to sustain these vital operations worldwide.

Again, we appreciate the Congress' efforts to stem the continued decrease in force structure, and we are underway to regrow the Army in accordance with NDAA prescribed end strength. As we grow, however, we will focus first on filling the holes in our existing units as our top priority.

TRAINING:

Training is the bedrock of readiness. The Army must continue to conduct realistic and rigorous training across multiple echelons to provide trained and ready forces, and this realistic training regimen is dependent upon predictable and sustained resources, both time and money.

To maximize our resources, the Army has made significant progress implementing the Sustainable Readiness Model (SRM) and restoring core warfighting skills, and we remain focused on achieving full spectrum readiness for combined arms maneuver proficiency against peer competitors. SRM, the Army's solution to manage risk and fight and win when called, is a Total Force effort to define readiness objectives for current demand while mitigating risk for contingency requirements. Because readiness objectives inform programmatic decisions, a key SRM benefit is prevention of the "readiness cliff" as units redeploy from named operations.

To ensure a trained and ready Army, the Army accepted considerable risk by reducing end-strength while deferring modernization programs and infrastructure investments. These trade-offs reflect constrained resources, not strategic insight. Again, we appreciate your support in helping stem the tide of force structure reductions, and our restored strength must be coupled with sufficient and sustained funding to avoid creating a hollow force.

Today, only about one-third of our BCTs, one-fourth of our Combat Aviation Brigades and half of our Division Headquarters are ready. Of the BCTs that are ready, only three could be called upon to fight tonight in the event of a crisis. In total, only about two-thirds of the Army's initial critical formations—the formations we would need at the outset of a major conflict—are at acceptable levels of readiness to conduct sustained ground combat in a full spectrum environment against a highly lethal hybrid threat or near-peer adversary. Stated more strategically, based on current readiness levels, the Army can only accomplish Defense Planning Guidance Requirements at high military risk. To address this vital readiness issue, the Army continues to fully fund Combat Training Center (CTC) rotations, establish objective training standards, reduce non-essential training requirements, and protect home station training to increase training rigor and readiness in our formations.

A ready Army requires highly trained units across all components. To build sufficient operational and strategic depth, the Army continues to explore ways to build increased readiness in our Reserve Component units. This includes increasing the number of annual training days for early deployers to provide sufficient repetition in core tasks; building multi-component and round-out units to enhance Total Force integration; and expanding Army National Guard BCT's CTC rotations from two to four in fiscal year 2018. These initiatives, providing readiness for current operations and ensuring strategic depth required for future campaigns, will require sufficient resources.

Looking to the future, the Army continues to work with our Joint Force partners to develop the multi-domain battle concept. This emerging concept, though in the early stages of development, will enable the Joint force to create temporary windows of opportunity across multiple domains—air, land, sea, space and cyberspace—to seize, retain and exploit the initiative, defeat enemies and achieve military objectives. The Army is developing a Multi-Domain Task Force to evolve and refine the concept, based on operational lessons and experimentation that will ultimately inform future training.

EQUIPPING/SUSTAINING:

Our Army requires modernized equipment to win decisively, but today we are out-ranged, outgunned and outdated. We have prioritized our near-term readiness to the detriment of equipment modernization and infrastructure upgrades, assuming risk and mortgaging our future readiness. Looking ahead, the Army will prioritize critical equipment modernization and infrastructure upgrades while proceeding with acquisition reform initiatives to deliver optimal readiness with apportioned resources.

An unintended consequence of current fiscal constraints is that the Army can no longer afford the most modern equipment, and we risk falling behind near-peers in critical capabilities. Decreases to the Army budget over the past several years significantly impacted Army modernization. Given these trends, and to preserve readiness in the short term, the Army has been forced to selectively modernize equipment to counter our adversary's most pressing technological advances and capabilities. At the same time, we have not modernized for warfare against peer competitors, and today we risk losing overmatch in every domain.

The Army developed the Army Equipment Modernization Strategy to preserve readiness in the short term and manage risk in the mid- to long-term. The strategy reflects those areas in which the Army will focus its limited investments for future Army readiness. We request the support of Congress to provide flexibility in current procurement methods and to fund five capability areas—Long Range Precision Fires, Cyber/Electronic Warfare, Integrated Air and Missile Defense, Active Protection Systems for combat vehicles and aircraft and Stryker Lethality Upgrades—to provide the equipment the Army requires to fight and win our Nation's wars.

Prioritizing readiness, given current fiscal constraints the Army must assume risk in installation modernization and infrastructure improvement. Installations are the Army's power projection platforms and a key component in generating readiness. To build readiness, however, the Army has been forced to cancel or delay military construction, sustainment, restoration and modernization across our posts, camps and stations. Right now 22 percent, or 33,000 Army facilities require significant investment to address critical infrastructure deficiencies. Additionally, the Army reduced key installation services, individual training programs, and modernization to a level that impacts future readiness and quality of life. The deliberate decision to prioritize readiness over Army modernization and installation improvement, though necessary, is an unfavorable one.

LEADER DEVELOPMENT:

The single most important factor in delivering Army readiness, both now and in the future, is the development of decisive leaders of character at every echelon. Our deep bench of combat experienced leaders remain our asymmetric advantage. To that end, the Army will continue to develop leader competencies for the breadth of missions across the Total Force.

In a complex and uncertain world, the Army will cultivate leaders who thrive in uncertainty and chaos. To ensure the Army retains this decisive advantage, we continue to prioritize leader development across the force ... from the individual and unit to the institution level. In fiscal year 2016, the Army trained over 500,000 soldiers and leaders from all three components in its Professional Military Education programs, along with nearly 30,000 more from our Joint Force teammates. Despite budget constraints, we will continue to fund these priority programs, targeted to develop soldiers and leaders who demonstrate the necessary competence, commitment and character to win in a complex world.

Decisive leaders strengthen the bond between our Army and the Nation and preserve our All-Volunteer Force. As Army leaders, we continue to express our enduring commitment to those who serve, recognizing that attracting and retaining high quality individuals in all three components is critical to readiness. The Army is expanding our Soldier for Life-Transition Assistance Program (SFL-TAP) to drive cultural change. Our soldiers will receive the tools, leveraging resources from their time in service, to succeed in the civilian sector. As they return to civilian life, soldiers will continue to serve as ambassadors for the Army and, along with retired soldiers and veterans, remain the vital link with our Nation's communities. We owe it to our soldiers and their families to ensure our veterans strengthen the prosperity of our Nation through rewarding and meaningful civilian careers and service to their communities.

Committed and engaged leadership is the focal point of our Sexual Harassment/Assault Response and Prevention (SHARP) efforts. To that end, we recently fielded the Emergent Leader Immersive Training Environment (ELITE) Command Team Trainer and the Prevention and Outreach Simulation Trainer to train Army SHARP professionals on how to support command teams and units. The Army is also helping shape the Department's Installation Prevention Project by sharing best practices on case management methodology, Community Health Promotion Councils and collaboration efforts. These holistic prevention and response efforts strengthen our Army culture, enrich Army readiness and support Department of Defense efforts.

Army leaders remain committed to building diverse teams. We continue to fully integrate women into all combat roles throughout the operational force and remain committed to a standards-based process to maintain readiness. The Army's deliberate process validated standards, grounded in real-world operational requirements, and will provide our integrated professional force the highest level of readiness and potential for mission success.

In this increasingly complex world, decisive leaders are essential to maintaining a ready Army, composed of resilient individuals and cohesive teams, capable of accomplishing a range of missions amidst uncertainty and persistent danger.

CLOSING:

Today, our Army stands ready to defend the United States and its interests. This requires sustained, predictable funding. To rebuild readiness today and prepare for tomorrow's challenges, the Army has prioritized combined arms maneuver readiness against a peer competitor as we prepare to respond to our Nation's security challenges. The difficult trade-offs in modernization and installation improvements reflect the hard realities of today's fiscal constraints.

In the immediate future, the Army looks forward to providing input to the Department of Defense's 30-day Readiness Review, an important document that will inform a new National Defense Strategy. More long term and with your assistance, the Army will continue to resource the best-trained, best-equipped and best-led fighting force in the world. We thank Congress for the steadfast support of our outstanding men and women in uniform. The Army is all about people ... our soldiers, families, civilians ... and they deserve our best effort.

Senator INHOFE. Thank you.

All statements will be made a part of the record.

Good statement.

Admiral Moran?

**STATEMENT OF ADMIRAL WILLIAM F. MORAN, USN, VICE
CHIEF OF NAVAL OPERATIONS**

Admiral MORAN. Thank you, Mr. Chairman, and good afternoon to you and the members of the subcommittee. It's a real privilege to be here with my fellow Vice Chiefs to talk about the readiness of our military.

The crux of my testimony is that your Navy is less ready because she is simply too small. It's a simple matter of supply can't meet demand. The smallest Navy we've had in 99 years can only answer 40 percent of combatant commander requirements today.

On 9/11, we had 316 ships and over 400,000 sailors. Today we have 275 ships and nearly 90,000 fewer sailors, and yet the world has become a lot busier place today. A smaller fleet operating at the same pace is wearing out faster, work is increased, and we're asking an awful lot of our sailors and Navy civilians.

That said, we are where we are, which makes it urgent to pass an amended budget and remove sequestration so that we can adequately fund, fix, and maintain the fleet that we do have.

It seems that every year, to Senator Kaine's point, we come before you and talk about making tough choices, and more often than not, we rightly choose to support those forward at the expense of those at home. This year is more of the same as our long-term readiness continues its insidious decline. While we're still able to put our first team on the field, our bench is largely depleted.

With your help, we have the opportunity to change all this. It starts by strengthening the foundation of the Navy by ensuring that the ships, aircraft, and submarines that we do have are maintained and modernized so they provide the full measure of their combat power. Then let's fill the holes by eliminating the inventory shortfalls of ships, submarines, and aircraft in the fleet. Together, by taking these two steps, we can achieve the ultimate goal of sizing the Navy to meet the strategic demands of this dynamic and changing world.

Mr. Chairman, thank you very much. I look forward to your questions.

[The prepared statement of Admiral Moran follows:]

PREPARED STATEMENT BY ADMIRAL WILLIAM F. MORAN

Mr. Chairman, Ranking Member Kaine, and distinguished members of the Subcommittee, I appreciate the opportunity to testify on the current state of Navy readiness and the challenges we face today and in the future.

Before we discuss Navy's readiness challenges and our plans to address them, it is important to understand our present situation. Globally present and modern, our Navy provides timely, agile, and effective options to national leaders as they seek to advance American security and prosperity. Today, however, the ongoing demand for naval forces continues to grow, which will require the Navy to continue to make tough choices. In the classic trade space for any service (readiness, modernization and force structure), readiness has become the bill payer in an increasingly complex and fast-paced security environment. To address these realities, the Navy has identified investments to restore the readiness of the fleet today to shore up what we have. At the same time, we cannot restore the fleet to full health without also updating our platforms and weapons to better address current and future threats, and evaluating the right size of the Navy so that it can sustain the tempo of operations that has become the norm. The Navy is actively working on plans for the future fleet with Secretary Mattis and his team, and we look forward to discussing those plans with you when they are approved.

To characterize where we are today, I would say it's a tale of two navies. As I travel to see our sailors in the United States and overseas, it is clear to me that our deployed units are operationally ready to respond to any challenge. They understand their role in our nation's security and the security of our allies, and they have the training and resources they need to win any fight that might arise. Unfortunately, my visits to units and installations back home in the United States paint a different picture. As our sailors and Navy civilians, who are just as committed as their colleagues afloat, prepare to ensure our next ships and aircraft squadrons deploy with all that they need, the strain is significant and growing. For a variety of reasons, our shipyards and aviation depots are struggling to get our ships and airplanes through maintenance periods on time. In turn, these delays directly impact the time sailors have to train and hone their skills prior to deployment. These challenges are further exacerbated by low stocks of critical parts and fleet-wide shortfalls in ordnance, and an aging shore infrastructure. While our first team on deployment is ready, our bench—the depth of our forces at home—is thin. It has become clear to me that the Navy's overall readiness has reached its lowest level in many years.

There are three main drivers of our readiness problems: 1) persistent, high operational demand for naval forces; 2) funding reductions; and 3) consistent uncertainty about when those reduced budgets will be approved.

The operational demand for our Navy continues to be high, while the fleet has gotten smaller. Between 2001 and 2015, the Navy was able to keep an average of 100 ships at sea each day, despite a 14 percent decrease in the size of the battle force. The Navy is smaller today than it has been in the last 99 years. Maintaining these deployment levels as ships have been retired has taken a significant toll on our sailors and their families, as well as on our equipment.

The second factor degrading Navy readiness is the result of several years of constrained funding levels for our major readiness accounts, largely due to fiscal pressures imposed by the Budget Control Act of 2011. Although the Bipartisan Budget Act of 2015 provided temporary relief, in fiscal year 2017 the Navy budget was \$5 billion lower than in fiscal year 2016. This major reduction drove very hard choices, including the difficult decision to reduce readiness accounts by over \$2 billion this year.

The third primary driver of reduced readiness is the inefficiency imposed by the uncertainty around when budgets will actually be approved. The inability to adjust funding levels as planned, or to commit to longer-term contracts, creates additional work and drives up costs. This results in even less capability for any given dollar we invest, and represents yet another tax on our readiness. We are paying more money and spending more time to maintain a less capable Navy.

We have testified before about the maintenance and training backlogs that result from high operational tempo, and how addressing those backlogs has been further set back by budget cuts and fiscal uncertainty. Our attempts to restore stability and predictability to our deployment cycles have been challenged both by constrained funding levels and by operational demands that remain unabated.

Although we remain committed to return to a seven month deployment cycle as the norm, the need to support the fight against ISIS [Islamic State of Iraq and Syria] in 2016 led us to extend the deployments of the Harry S Truman and Theodore Roosevelt Carrier Strike Groups to eight and eight and a half months, respectively. Similar extensions apply to the Amphibious Ready Groups which support Marine Expeditionary Units. This collective pace of operations has increased wear and tear on ships, aircraft and crews and, adding to the downward readiness spiral, has decreased the time available for maintenance and modernization. Deferred maintenance has led to equipment failures, and to larger-than-projected work packages for our shipyards and aviation depots. This has forced us to remove ships and aircraft from service for extended periods, which in turn increases the tempo for the rest of the fleet, which causes the fleets to utilize their ships and airframes at higher-than-projected rates, which increases the maintenance work, which adds to the backlogs, and so on.

Reversing this vicious cycle and restoring the short-term readiness of the fleet will require sufficient and predictable funding. This funding would allow our pilots to fly the hours they need to remain proficient, and ensure that we can conduct the required maintenance on our ships. It would also enable the Navy to restore stocks of necessary parts, getting more ships to sea and better preparing them to stay deployed as required.

Our readiness challenges go deeper than ship and aircraft maintenance, directly affecting our ability to care for the Navy Team. Our people are what make the U.S. Navy the best in the world, but our actions do not reflect that reality. To meet the constraints of the Balanced Budget Act, the Navy's fiscal year 2017 budget request

were forced to reduce funding for Permanent Change of Station (PCS) moves. These reductions have been compounded by the Continuing Resolution, which imposed even further reductions on that account. Without sufficient PCS funding, the Navy will be unable to move sailors to replace ship and squadron crewmembers leaving service, increasing the strain on those who remain. This is an area in which timing also matters greatly. Even if the money comes eventually, if it is too late, necessary moves will be delayed until the beginning of the new fiscal year. That means our sailors with children will be forced to relocate their children in the middle of a school year. Because we don't know if and when additional PCS funding may come, we cannot give our sailors and their families much time to prepare, often leaving them with weeks, rather than months, to prepare for and conduct a move, often from one coast, or even one country, to another.

Meanwhile, our shore infrastructure has become severely degraded and is getting worse because it has been a repeated bill payer for other readiness accounts in an effort to maintain afloat readiness. Consequently, we continue to carry a substantial backlog of facilities maintenance and replacement, approaching \$8 billion.

SUMMARY

Time is running out. Years of sustained deployments and constrained and uncertain funding have resulted in a readiness debt that will take years to pay down. If the slow pace of readiness recovery continues, unnecessary equipment damage, poorly trained operators at sea, and a force improperly trained and equipped to sustain itself will result. Absent sufficient funding for readiness, modernization and force structure, the Navy cannot return to full health, where it can continue to meet its mission on a sustainable basis. Even if additional resources are made available, if they continue to be provided in a way that cannot be counted on and planned for, some will be wasted. As we strive to improve efficiency in our own internal business practices, those efforts are being actively undermined by the absence of regular budgets. Although we face many readiness challenges, your Navy remains the finest Navy in the world. We are committed to maintaining that position. That commitment will require constant vigilance and a dedication to readiness recovery, in full partnership with the Congress. On behalf of our sailors and civilians, thank you for your continued support.

Senator INHOFE. Thank you, Admiral. Excellent statement.
General Walters?

STATEMENT OF GENERAL GLENN M. WALTERS, USMC, ASSISTANT COMMANDANT

General WALTERS. Good afternoon, sir. Chairman Inhofe, Ranking Member Kaine, and distinguished members of the Armed Services Subcommittee on Readiness, thank you for the opportunity to appear today and report on the readiness of your Marine Corps.

The Marine Corps remains dedicated to our central role as our nation's naval expeditionary force. During 15 years of conflict, we've focused investment on ensuring our marines were prepared for the fight, and they were. Today our operational tempo remains as high as it was during the peak of operations in Iraq and Afghanistan.

Our continued focus on deployed unit readiness, combined with fiscal uncertainty and funding reductions, leave your Marine Corps facing substantial readiness challenges. Your Marine Corps is insufficiently manned, trained, and equipped across the depth of the force to operate in an evolving operational environment. Due to years of fiscal constraints, the Marine Corps is fundamentally optimized for the past and has sacrificed modernization and infrastructure to sustain our current readiness.

In addition to the increased resources for operations and maintenance needed to improve current readiness across the entirety of your Marine Corps, we require your support in three key areas to regain the readiness levels our nation requires of us. Over the past

18 months we have identified various end strengths and associated capabilities and modernization required to operate in the threat environment characterized by complex terrain, information warfare, electromagnetic signatures, and a contested maritime environment.

We need to increase our active component end strength. We are confident that an increase of 3,000 marines per year maintains a rate of growth consistent with effective recruiting while maintaining our high standards. Our bases, stations, and installations are the platforms where we train and generate our readiness. The continued under-funding of our facilities sustainment, restoration, modernization, and military construction continues to cause progressive degradation of our infrastructure and creates increased long-term costs. We have a backlog of \$9 billion in deferred infrastructure sustainment requirements. We require up-to-date training systems, ranges, and facilities to support the fielding of our new equipment, and simulation systems that facilitate improved training standards and readiness.

Supporting the joint force requirements over the past 15 years consumed much of the life of our legacy systems, while fiscal uncertainty reduced defense spending for significant delays in our modernization efforts. There are significant costs associated with maintaining and sustaining any legacy system without a proportional capability increase associated with that investment. As we continue to spend limited fiscal resources to sustain legacy systems developed for threats 20 years ago, we risk steadily losing our competitive advantage against potential adversaries. We need to modernize our ground tactical vehicle and aircraft fleets soonest. Accelerated investments in amphibious ships is necessary to reach our wartime requirement.

If forced to continue to pursue the path of investing in legacy systems in lieu of modernizing our force, we will find our Marine Corps optimized for the past and increasingly at risk to deter and defeat our potential adversaries.

On behalf of all of our marines, sailors, and their families, and the civilians who support their service, we thank the Congress and this subcommittee for the opportunity to discuss the key challenges our Marine Corps faces. I thank you for your support as articulated in the recent 2017 National Defense Authorization Act.

While much work needs to be done, the authorizations within, coupled with sufficient funding and the repeal of the Budget Control Act, will begin to put us on a path to rebuild and sustain our Marine Corps for the 21st Century. I look forward to your questions.

[The prepared statement of General Walters follows:]

PREPARED STATEMENT BY GENERAL GLENN M. WALTERS

INTRODUCTION

Chairman Inhofe, Ranking Member Kaine, and distinguished members of the Senate Armed Services Subcommittee on Readiness, I appreciate the opportunity to testify on the current state of Marine Corps readiness. The Marine Corps remains dedicated to our essential role as our Nation's expeditionary force in readiness, chartered by the 82nd Congress and reaffirmed by the 114th Congress. During 15 years of conflict in Afghanistan and Iraq, we focused investment on ensuring marines were prepared for the fight, and they were. This was our task and our focus. Those 15 years of conflict consumed much of the useful life of many of our legacy systems

while delaying replacement with new equipment. A focus on those operations, the decrease in funding levels from fiscal year (FY) 2012, fiscal instability and the lack of an inter-war period have left your Marine Corps insufficiently manned, trained and equipped across the depth of the force to operate in an evolving operational environment. Under the current funding levels and those we stand to face in the near future—the current Continuing Resolution and the Budget Control Act (BCA)—your Marine Corps will experience increasingly significant challenges to the institutional readiness required to deter aggression and, when necessary, fight and win our Nation’s battles. Rebuilding the Marine Corps will require near term actions that can be implemented in fiscal year 2017 and fiscal year 2018 as well as longer term efforts in the Future Years Defense Plan (FYDP). I would like to take this opportunity to share with you the accomplishments of your Marine Corps, provide our vision for the Marine Corps of tomorrow, and to articulate the readiness challenges we face as we strive to reach that vision. With the support of the 115th Congress, we can begin the deliberate journey to overcome these difficulties and rebuild your Marine Corps for the 21st Century.

YOUR MARINE CORPS TODAY

In 2016, your Marine Corps remained in high demand, forward deployed, and at the same operational tempo as the past 15 years. With an increasingly challenging and complex global security environment, the Joint Force continues to require and actively employs our expeditionary capabilities. During the past year, your marines executed approximately 185 operations, 140 security cooperation events with our partners and allies and participated in 65 major exercises.

Nearly 23,000 marines remain stationed or deployed west of the International Date Line to maintain regional stability and deterrence in the Indo-Asia-Pacific region. Our Marine Expeditionary Units (MEUs) continue their support of Joint Force requirements around the globe. Our MEUs have supported counterterrorism (CT) operations in Iraq and North Africa, humanitarian assistance and disaster relief (HA/DR) in Japan and Haiti, and remain forward deployed to respond to the next crisis. In partnership with the State Department, we employed Marine Security Guards at 176 embassies and consulates in 146 countries. Altogether, over 66 percent our operating forces have been deployed or stationed overseas during calendar year 2016.

Since 2013, marines have increasingly deployed to land-based locations due to the limited inventory of operationally available amphibious ships. Joint Force requirements remain high, and the number of available amphibious ships remains below the requirement. Despite the limitations in available amphibious shipping, your Marine Corps adapted to meet these requirements through land-based Special Purpose Marine Air-Ground Task Forces (SPMAGTFs). In 2016, we sourced SPMAGTFs to Central Command, Africa Command and Southern Command. Our Black Sea Rotational Force remains forward deployed in Europe. Although SPMAGTFs have met a limited requirement for the Joint Force, they lack the full capability, capacity and strategic and operational agility that results when Marine Air-Ground Task Forces (MAGTFs) are embarked aboard Navy amphibious ships.

WHAT TOMORROW’S MARINE CORPS REQUIRES

Marine Corps institutional readiness is built upon five pillars: Unit Readiness; Capability and Capacity to Meet Joint Force Requirements; High Quality People; Installation Capability; and Equipment Modernization. First, unit readiness is always our most immediate concern. Cohesive unit teams are the instruments that accomplish national security objectives, and we must ensure our ability to successfully accomplish any mission when called. Second, when the Joint Force requires naval expeditionary capabilities, we must answer with both the capabilities and capacity necessary to meet their needs. The third, most important pillar of our readiness remains our marines, the product of a time-tested yet evolving transformation process beginning with our Recruiting and Training Commands. The fourth, often understated, pillar of our readiness is our infrastructure. Our bases, stations, and installations, not only serve as locations where we train our marines, but also where we sustain their equipment and support their families. We have a backlog of \$9 billion in deferred infrastructure sustainment requirements. We require up-to-date training systems, ranges and facilities. We need resources to sustain our installation capabilities at a higher level than we have been able to reach for the last 5 years. Fifth and finally, we must accelerate equipment modernization, as it is essential in our transformation to a 21st Century, 5th generation Marine Corps.

We require proper balance across these pillars to achieve a force capable not only of assuring allies and deterring threats, but able to rapidly respond to crises and

contingencies, while remaining good stewards of the Nation's limited resources. Currently, readiness is not where it needs to be. Resources that would have otherwise been applied to installation capabilities and modernization were re-prioritized to support deployed and next-to-deploy units to safeguard near-term operational unit readiness. We are not only out of balance but are also short of the resources required to rebalance.

We require a more stable and predictable fiscal planning horizon to support increased end strength, equipment recapitalization and modernization, amphibious ship capability and capacity, and the modern infrastructure required to rebuild and sustain balanced readiness across the depth of the force. Looming BCA implementation continues to disrupt our planning and directly threatens our current and future readiness.

UNIT READINESS

Despite the existing fiscal constraints, we will continue to ensure deployed units possess mission critical resources to the greatest extent possible—trained personnel, operational equipment and vital spare parts—required to accomplish their mission. Deployed and next-to-deploy units will remain our priority in the current fiscally-constrained environment while we increasingly experience risk to non-deployed unit readiness.

The most acute readiness concerns are found in our aviation units. Approximately 80 percent of our aviation units lack the minimum number of ready basic aircraft (RBA) for training, and we are significantly short ready aircraft for wartime requirements. Recapitalization of attack helicopters and reset of heavy lift helicopters are two examples of ways we are addressing RBA shortfalls. Our tactical fighter and attack squadrons suffer from shortages in aircraft availability due to increased wear on aging airframes subjected to continuing modernization delays. The impact of reduced funding levels on our depot level maintenance capacity still resonates today. We have temporarily reduced the number of aircraft assigned to our fighter-attack and heavy lift squadrons. We simply do not have the available aircraft to meet our squadrons' requirements. This means that flight hour averages per crew per month are below the minimum standards required to achieve and maintain adequate flight time and training and readiness levels. Although deployed squadrons remain trained for their assigned mission, next-to-deploy squadrons are often achieving the minimum readiness goals just prior to deployment. Reduced acquisition rates for the F-35 and the CH-53K require the Marine Corps to continue to operate legacy aircraft well beyond their planned lifespan. Every dollar decremented from our procurement of future systems increases both the cost and complexity of maintaining our aged legacy systems beyond their projected life. Every dollar spent on aviation modernization now has a direct positive effect on current and future aviation readiness.

We currently maintain higher ground equipment readiness than what we experience within our aviation community, but that is small consolation given the age of most of this ground equipment. With Congress' sustained support of our reset effort, the Marine Corps has reset over 90 percent of its legacy ground equipment. Despite this effort, underlying readiness issues exist. Non-deployed forces experience supply degradation as they source low density equipment requirements in support of deployed, task organized units such as our SPMAGTFs. These equipment shortfalls create training gaps for non-deployed units preparing for their next deployment. Our most important ground legacy capabilities continue to age as modernization efforts are at minimum production rates due to limited available resources. Our Amphibious Assault Vehicles (AAVs) are a prime example. Our AAVs are now more than four decades old. Our AAV Survivability Upgrade (SU) Program will sustain and marginally enhance the capability of the legacy AAV, but will not replace any of these nearly obsolete legacy vehicles. The average age of our Light Armored Vehicle (LAV) fleet is 26 years; our oldest vehicle is 34 years old. There is currently no program identified to replace this capable but outdated platform, and yet we continue to incur increased costs with the LAV Obsolescence Program to extend its life. Our AAVs and LAVs are two of the four systems that consume 50 percent of the Marine Corps' annual depot maintenance budget. There is significant cost associated with maintaining and sustaining any legacy systems without a proportional capability increase associated with that investment. As we continue to spend limited fiscal resources to sustain legacy systems as a result of deferred modernization, we risk steadily losing our capability advantage against potential adversaries.

Current readiness shortfalls require additional operations and maintenance resources, and we have exhausted our internal options. Additional resources would facilitate exercises and training and correct repair parts shortfalls, while specifically

addressing aviation specific operations and maintenance funding. In sum, the Marine Corps has a plan to regain and sustain unit readiness. With your support, we can execute our plan to achieve required organizational readiness.

JOINT FORCE REQUIREMENTS AND CAPACITY TO RESPOND

The 2014 Quadrennial Defense Review (QDR) and fiscal constraints directed the Marine Corps to decrease its end strength from 202,000 to 182,000. 2014 QDR assessments and assumptions identified limited global security challenges compared to what we face today. We must continue to counter violent extremist organizations and deter both an emboldened China and a more aggressive Russia. As a result, the need for deployed and forward stationed marines has not diminished while the size of the force has decreased. Our current end strength challenges our ability to support Joint Force requirements while simultaneously maintaining the minimum adequate time at home stations and bases to reconstitute our units and train for the full range of military operations prior to next deployment. At our current end strength, the operational tempo is creating significant and unsustainable strain on the force.

Increased support for both equipment readiness and force structure levels remain critical requirements to improve our readiness. Time is equally as vital as funding to generate required readiness levels. Our sustainable deployment to dwell (D2D) ratio is 1:3, which means a deployment of six months is followed by a period of 18 months at home station. Units require adequate home station time to conduct personnel turnover; equipment reset and maintenance; and complete a comprehensive individual, collective, and cohesive unit training program. Units need this period to ensure they are ready to meet all core and assigned Mission Essential Tasks (METs) prior to re-deploying.

These challenges are compounded by the requirements on today's force. Those requirements place a 1:2 D2D ratio on many of our units and capabilities. The current ratio equates to a home station training period one third less than what our best military judgment and experience tells us is necessary and sustainable. Some units and personnel that possess critical high demand, low density capabilities and skill sets currently operate below a 1:2 D2D ratio. Portions of marine aviation experience operational tempo below a 1:2 D2D ratio. Our tiltrotor MV-22 Ospreys, deployed in conjunction with KC-130J aerial refueling aircraft, provide previously unthinkable reach and flexibility to the Joint Force. Deployment requirements have also brought both communities to unsustainable D2D ratios. We recently reduced the number of those aircraft assigned to our SPMAGTFs in order to move these communities closer to a sustainable path. The capabilities provided to the Joint Force will not change; however, capacity will decrease. With increasing demand, resource limitations will further reduce Joint Force capacity and/or incur risk for home station units required for major combat operations. Some of our formations lack the requisite days of supply to sustain a major conflict beyond the initial weeks. The Marine Corps continues to support existing operational requirements, but we may not have the required capacity—the “ready bench”—to respond to larger crises at the readiness levels and timelines required.

HIGH QUALITY PEOPLE

The success of our Marine Corps relies upon the high quality, character, and capabilities of our individual marines and civilians; they are the cornerstone of our readiness. Since the establishment of the All-Volunteer Force over 40 years ago through the millennial generation of today, we have successfully recruited and retained the high caliber men and women we need to operate effectively in the global security environment. Nearly 70 percent of our marines are serving in their first enlistment, and approximately 35,000 marines leave the Marine Corps each year. They must be replaced with the same high quality men and women. Our recruiting efforts continue to succeed in providing highly talented, patriotic men and women to replace those marines who loyally served before. 99.89 percent of our newest marines and recruits are high school graduates. This speaks to the quality of the marines that make up our force. Despite our continued successes, we must continue to seek ways to maintain the high quality people who will comprise tomorrow's Marine Corps. We must closely track our ability to recruit and retain our most highly qualified and skilled marines. In order to retain marines on our team, we require the resources to offer incentives to marines with experience, critical skills and valuable specialties.

Marine Corps Force 2025, a year-long, comprehensive, bottom-up review of the force identified various end-strengths and the associated capabilities and modernization required to operate in the future security environment. Through this process, we determined that we need to increase Active component end strength to at least

194,000, to build new capabilities that will deter, defeat and deny adversaries and meet future Joint Force requirements. An increase of 3,000 marines per year maintains a rate of growth consistent with effective recruiting and accession while maintaining our high standards and ensuring a balanced force. We thank you for passing the 2017 NDAA that authorizes 185,000 Active component marines. Your authorization, combined with the appropriations we still require, puts your Marine Corps on the right path to realize necessary growth that will enhance readiness.

INSTALLATION CAPABILITY

Marine Corps installations are the power projection platforms that generate our readiness; they build, train and launch combat-ready forces. Our installations provide the capability and capacity we need to support the force. This includes our two depot maintenance facilities, which provide responsive and scalable depot maintenance support. While prioritizing deployed readiness, we defer infrastructure and facility investments and modernization necessary to sustain and train our Marine Corps for the 21st Century. The continued deferment of Facility Sustainment, Restoration and Modernization (FSRM) requires increased infrastructure investment now to ensure that future FSRM requirements costs do not increase. We ask for your continued support to restore and modernize our facilities.

In addition to facilities sustainment and recapitalization, we require investment in military construction (MILCON). Those investments will support the fielding of new equipment and simulation systems that facilitate improved training standards and operational readiness enhancements. Improvements in training areas, to include aerial and ground ranges, require your support for special use airspace and additional land to replace inadequate facilities.

MODERNIZATION

Modernization is the foundation of our future readiness to deter and counter growing threats. Investing in and accelerating our modernization programs directly correlate to improved overall readiness. Previous decrements to our modernization efforts deferred and delayed our critical future programs and forced us to continue investment in aged legacy systems that lack the capabilities required for the 21st Century. Over time, legacy systems continue to cost more to repair and sustain. Simultaneously, we incur the opportunity costs associated with the delayed fielding of replacement systems and the increased capabilities they will provide. When we accelerate modernization, we reduce unit costs, achieve efficiencies and save taxpayer money.

Our Aviation Modernization Plan requires acceleration after suffering recent delays, many attributed to funding deficiencies. This modernization plan has proven its worth. Our MV-22 Ospreys expand the operational reach of marines supporting Joint Force requirements. Increasing the procurement of the F-35 and CH-53K will result in similar and greater marine aviation capability improvements. Our first operational F-35 squadron relocated to Iwakuni, Japan last month. The squadron will deploy the F-35B as part of a MEU for the first time in 2018. We look forward to the stand-up of our first F-35C squadron, further enhancing the 5th generation capabilities of our Navy-Marine Corps Team. The CH-53K Heavy Lift Replacement remains critical to maintaining the battlefield mobility our force requires. It will nearly triple the lift capacity of the aircraft it is replacing. The acceleration of these key modernization programs will directly improve our readiness and allow us to retire aircraft that have reached or exceeded their intended life.

To modernize our ground combat element and ensure success against increasingly capable 21st Century threats, we need to accelerate investments in our ground systems. We need to replace our 40-year old AAV fleet soonest. The procurement of Joint Light Tactical Vehicles as planned will incrementally replace our High Mobility Multipurpose Wheeled Vehicles that we began operating over 30 years ago and that are still in use today. This needs to be accelerated. There is currently no replacement program for our legacy LAV fleet. We need to develop and invest in a next generation replacement for this system. Additionally, we need to establish programs that develop, procure and deliver active protection systems, counter-UAS and increased long-range precision fires capabilities. The Marine Corps will need your support to recapitalize and modernize these key ground capabilities required for the future operating environment.

Amphibious platforms provide the sovereignty, strategic mobility, unmatched logistical support, operational reach, and forcible entry capability required to deter and, when necessary, defeat our Nation's adversaries. Our amphibious capability is a centerpiece to the operational success of the Navy-Marine Corps Team. Our amphibious concepts—our Naval character and expeditionary mindset—have been vali-

dated by history, and we will remain agents of change in the future. As the operating environment changes, the Marine Corps will continue to innovate as we implement our new Marine Corps Operating Concept (MOC). The availability of amphibious shipping remains paramount to our readiness, responsiveness and the MOC. The Nation's amphibious warship requirement remains at 38. The current inventory of 31 vessels falls well short of this requirement. Recurrent maintenance challenges in the aging amphibious fleet significantly exacerbate that shortfall. The current and enduring gap of amphibious warships to requirements inhibits our Navy-Marine Corps Team from training to our full capabilities, impedes our shared ability to respond to an emergent crisis, and increases the strain on our current readiness. We will explore procurement strategies including the possibility of block buys and accelerating schedules that offer the best value for the taxpayer and allow us to retain skilled artisans in our shipyards. Along with increased amphibious ship capacity and modernization, we require the funding for the associated surface connectors that transport our marines from ship-to-shore, including the programmed replacement of the Landing Craft Air Cushioned and Landing Craft Utility platforms. These investments will improve our overall amphibious capability and capacity.

The 5th generation Marine Corps for the 21st Century must dominate the information domain. We must both enable and protect our ability to command and control (C2) marines distributed across an area of operations. This requires transforming MAGTF C2 capabilities through a unified network environment that is ready, responsive and resilient. Recently fielded C2 systems provide a significantly increased capability associated with maneuver across the battlespace. We require support from the Congress to fully field these capabilities to the tactical edge, both in our ground and aviation platforms. These are examples of modern capabilities that will facilitate improved battlefield awareness to and from small, dispersed tactical units. As warfare evolves into a battle of signatures and detection, improvements such as these are vital to maximize our marines' protection and effectiveness.

For too long, we have balanced the cost of our modernization efforts against our current readiness by extending and refreshing many of our legacy systems. While we judge these risks to be at manageable levels today, those risks are increasing and they are yet more examples of the trade-offs we are required to make due to fiscal reductions that accompany operational demand increases. The continued support of this Congress can mitigate and reverse these risks.

CONCLUSION

On behalf of all of our marines, sailors—many deployed and in harm's way today—and their families and the civilians that support their service, we thank the Congress and this subcommittee for this opportunity to discuss the key challenges your Marine Corps faces. I thank you for your support as articulated in the recent 2017 NDAA. While much work needs to be done, the authorizations within, coupled with sufficient funding and the repeal of the BCA, will begin to put us on a path to rebuild and sustain your Marine Corps for the 21st Century. Our fiscal year 2018 plan will require adjustment for decisions in fiscal year 2017 NDAA authorizations. We need to carry over decisions for fiscal year 2017 and fiscal year 2018 into our FYDP planning. Along with your authorization, we ask for the continued support of this Congress to appropriate the funds required to rebuild your Marine Corps. Additional end strength authorized by the Congress will help put us on the path to generate both the capabilities and capacity required in the complex operating environment our Nation faces. Additional funds will provide the "ready bench" our Nation requires and the infrastructure the force needs to train and sustain itself. Our future readiness relies upon increased procurement and modernization funding that will facilitate amphibious ship capacity and allow us to off ramp the continued funding for sustaining legacy systems. We have a plan to reset, recapitalize and modernize your Marine Corps into a 5th generation force for the 21st Century. With fiscal stability and predictability and increased resources, we will provide the Expeditionary Force in Readiness our Nation requires to protect its interests and security. With the support of the 115th Congress, we will move forward with our plan and vision to ensure your Marine Corps is organized, manned, trained and equipped to assure our allies, deter and, when necessary, defeat our adversaries.

Senator INHOFE. Thank you, General.
General Wilson?

**STATEMENT OF GENERAL STEPHEN W. WILSON, USAF, VICE
CHIEF OF STAFF**

General WILSON. Thank you, Chairman Inhofe, Ranking Member Kaine, distinguished members of the subcommittee. On behalf of the Secretary of the Air Force and Chief of Staff of the Air Force, it's a pleasure to be here with you today, and with my fellow Vice Chiefs. I request the written statement be submitted for the record.

American airmen are professional, innovative, dedicated and, frankly, the envy of the world. They are proud to be part of the most powerful joint fighting team in our history. We provide our leaders with a broad range of options, from protecting our country and its interests both at home and abroad. For the past 70 years responsive, flexible, and agile American air power has been our nation's first and often most sustainable solution in conflict and in crisis, underwriting every other instrument of power.

We provide the nation with unrelenting global vigilance, global reach, and global power. In short, your Air Force is always in demand and always there. Look no further than two weeks ago when your Air Force executed a precision strike in Sirte, Libya, killing over 100 violent extremists. This was a textbook trans-regional, multi-domain, and multi-function mission. Air Force space, cyber, and ISR [intelligence, surveillance, and reconnaissance] warriors provided precision navigation and timing while monitoring enemy communication and movement.

Simultaneously, 2 B-2 bombers took off from Whiteman Air Force Base in Missouri, flew a 34-hour non-stop mission, refueled with 18 tankers from U.S., European, and Middle East bases, and teamed with two MQ-9s to employ 108 precision munitions, meeting their time on target within 10 seconds.

Meanwhile, every day your American airmen operate 60 remotely-piloted [RP] aircraft patrols 24/7/365, as an unblinking eye for combatant commanders. They remotely fly these missions from the continental United States. They team with nearly 20,000 forward-deployed airmen to support the missions, like the recent Raqqa and Mosul offensives, where our fighter bomber and RP airmen also conduct 92 percent of U.S. strikes against ISIS.

We do all of this while fulfilling two of our nation's most critical missions at home. We insert two-thirds of the nuclear triad and 75 percent of the nuclear command control communications remain to ensure robust, reliable, flexible and survivable options for the nation, while our fighters and tankers remain on alert, as they have for the past 15-plus years, ready to launch to defend the homeland.

The capabilities our airmen provide to our nation and our allies have never been more vital, and our global demand for American air power will only grow in the future. However, this steadfast watch comes at a price, and the demand for our mission and our people exceeds the supply. We are out of balance.

Twenty-six years of continuous combat has limited our ability to prepare for future advanced threat scenarios, scenarios with the lowest margin of error and the highest risk to national security. Non-stop combat, paired with budget instability and lower-than-planned toplines, have made the United States Air Force one of the smallest, oldest-equipped, and least ready in our history. We have attempted to balance the risk across our force to maintain readi-

ness but have been forced to make unacceptable tradeoffs between readiness, force structure, and modernization. Today's global challenges require an Air Force not only ready to defeat today's violent extremism but prepared and modernized for any threat the nation may face.

Mr. Chairman, I'll close by quoting General Douglas MacArthur. He sent a cable as he escaped the Philippines in 1942. He said, "The history of failure in war can be summed up in two words: Too late. Too late to comprehend the deadly purpose of the potential enemy, too late in realizing the moral danger, too late in preparedness."

Distinguished members of the subcommittee, preparedness or readiness cannot be overlooked. Your Air Force needs congressional support for fiscal year 2017 to pass an appropriation, and support for a budget amendment that accelerates readiness recovery. In fiscal year 2018 we must repeal the Budget Control Act and provide predictable funding for the future. These are critical to rebuilding full-spectrum military readiness, which is the number-one priority of the Secretary of Defense. We need to act now, before it's too late.

On behalf of the Secretary and the Chief of Staff and the 660,000 airmen, Active, Guard, Reserve, and civilians who serve our nation, thank you for your tireless support. I look forward to your questions.

[The prepared statement of General Wilson follows:]

PREPARED STATEMENT BY GENERAL STEPHEN W. WILSON

INTRODUCTION

Since our establishment 70 years ago, the United States Air Force has secured peace throughout the full spectrum of hostilities with a decisive warfighting advantage in, through, and from air, space, and cyberspace. Without pause, we deliver global combat power by deterring and defeating our nation's enemies, while supporting joint and coalition forces at the beginning, the middle, and end of every operation. Though the intrinsic nature of warfare remains unchanged, the character of war—and the approach joint forces must take to address new and changing threats—must continually evolve.

As the nation plans to counter the national security challenges posed by Russia, China, Iran, North Korea, and Violent Extremist Organizations, controlling and exploiting air, space, and cyberspace remains foundational to joint and coalition success. Today's 660,000 Active Duty, Guard, Reserve, and civilian airmen meet these challenges by deterring threats to the U.S., assuring our allies, and defeating our adversaries 24/7/365. We provide unwavering homeland defense and operate a robust, reliable, flexible, and survivable nuclear enterprise, as the bedrock of our national security.

This steadfast watch, however, comes at a price. Conducting continuous, worldwide combat operations since 1991 has placed a dangerous toll on our airmen, equipment, and infrastructure. Sustained global commitments and funding reductions have eroded our Air Force to be one of the smallest, oldest-equipped, and least ready forces across the full-spectrum of operations, in our service history. The uncertainty and reduction in military funding resulting from Budget Control Act of 2011 (BCA) further degraded our readiness. Such fiscal uncertainty critically challenges our ability to sustain warfighting capacity, improve readiness, modernize our force, and invest in research and development to maintain our advantages over near-peer competitors.

While the Bipartisan Budget Act (BBA) of 2015 provided some space to improve readiness and continue modernization efforts, your Air Force needs further Congressional support to ensure we continue to strengthen America's military to win today's fight, while building the Air Force our nation needs to meet tomorrow's challenges.

ALWAYS THERE

Your Air Force has been globally engaged for the last 26 years of combat operations. We relentlessly provide *Global Vigilance*, *Global Reach*, and *Global Power* for the nation ... we're always in demand ... and we're always there. Though our end strength has decreased by 38 percent since 1991, we have experienced significant growth across several mission areas.

Our airmen provide joint forces with Global Vigilance using real-time multi-domain platforms and sensors integrated across our global intelligence and command and control networks to find, fix, and finish a range of hostile targets simultaneously across the globe. Without fail, the Air Force flies 60 combat lines of persistent attack remotely piloted aircraft (RPA) per day ... the unblinking eye that supports combatant commander around the globe. Through our Intelligence, Surveillance and Reconnaissance (ISR) capabilities, we provided warfighters over 6,000 intelligence products per day used to identify enemy targets and trigger 70 percent of Special Operations Forces assaults on terrorists.

Additionally, the Air Force conducted 4,000 cyber missions against more than 100,000 targets, disrupting adversaries and enabling over 200 High Value Individual kill/capture missions. In securing our networks and digital infrastructure, 2016 saw Air Force cyber operators block more than 1.3 billion malicious connections—an average of more than 40 per second. Meanwhile, our space operators provide relentless and reliable interconnectedness, global positional awareness, global missile warning, and battlefield situational awareness for our joint forces.

Nearly every three minutes a mobility aircraft departs on a mission, providing *Global Reach* and access, projecting power through a network of airfields in 23 countries and 77 locations, while providing critical aerial refueling capability. In 2016, our aeromedical professionals evacuated over 5,700 patients and provided emergency medical care resulting in a 98 percent survival rate. Your Air Force provides unrelenting ability to maneuver, sustain, and recover personnel and assets ... at home, abroad, and with our allies and partners.

With American fighters, bombers, RPAs, and Intercontinental Ballistic Missiles (ICBMs), the Air Force provides conventional and nuclear Global Power that can strike an enemy on short notice anywhere in the world. In Iraq and Syria, the Air Force has led 65 percent of the more than 17,000 coalition airstrikes since 2014, to deliver decisive firepower supporting joint, special operations, and coalition ground forces to defeat and degrade ISIS and regain critical territory. All while our airmen continue to provide two legs of the nuclear triad, resource 75 percent of the Nuclear Command, Control, and Communications framework, deter our adversaries, and connect the President to strategic options.

Stitched together, the fabric of our Air Force weaves multi-domain effects and provides U.S. service men and women the strongest blanket of protection and the ability to power project American's full range of combat capabilities. Make no mistake, your Air Force is always there.

READINESS IN A CHANGING WORLD

However, being "always there" comes at a cost to our airmen, equipment, and infrastructure, and we are now at a tipping point. Sustained global commitments and recent funding cuts eroded Air Force readiness, capacity, and capability for a full-spectrum fight against a near-peer adversary. Our force structure and our platforms now represent one of the smallest, oldest-equipped, and least ready forces in our service history. In 2013, sequestration abruptly delayed modernization and reduced both readiness and the size of the Total Force.

Our readiness decline began as we entered fiscal year 2014 expecting a corresponding decrease in both operations and overall funding. Instead, fiscal year 2014 began with a government shutdown and fiscal planning focused on a second year of sequestration. Compounding the fiscal austerity, 2014 presented enormous geopolitical challenges to America. Challenges included Russia's annexing of Crimea, Chinese island-building in the South China Seas, the rapid rise of ISIS, and ongoing operations in Iraq and Afghanistan. Therefore, instead of reducing commitments, we entered into a new era of great power competition coupled with persistent war against violent extremism. The combination of decreased funding and increased military operations required the Air Force to make tradeoffs that adversely affected readiness. In short, our force is stressed to meet ever-growing mission demands.

In fiscal year 2016 and fiscal year 2017 budgets, we made necessary adjustments to balance near-term readiness with future modernization, but our readiness remains at a near all-time low due to continuous combat operations, reduced manpower, an aging fleet, and inconsistent funding. Instead of rebuilding readiness for near-peer conflicts, your Air Force is globally engaged in operations against lesser-

equipped, but still highly lethal, enemies. This requires airmen to serve at home and abroad to underpin joint force success, but at the expense of full-spectrum readiness. In contrast to our joint teammates, your airmen do not reset or regroup . . . they are either deployed abroad, deployed in place, or training for their next deployment.

Your Air Force needs permanent relief from the BCA caps, increased funding, flexible execution authority, and manpower to recover full-spectrum readiness. We will continue to do all we can to innovate, transform, and improve how we maximize our resources. However, we still need your help in providing funding stability with the ability to modernize our capabilities, at the pace required to fight and win against any emerging threat.

STATE OF AIR FORCE READINESS

During WWII, General MacArthur's Airman, General George Kenney, said it best, "Airpower is like poker. A second-best hand is like none at all—it will cost you dough and win you nothing." Today's Air Force is at risk of becoming a second-best hand with readiness hovering near 50 percent.

We remain America's first and most agile responder to crisis and conflict, underwriting every joint operation . . . however, the demand for your Air Force, exceeds the supply.

To meet the full requirements of our Defense Strategic Guidance and current operation plans, we require 80 percent of our combat squadrons to be full-spectrum ready. We define full-spectrum readiness as the right number of airmen, properly led, trained and equipped, to accomplish our Air Force mission in support of joint forces in both contested and uncontested environments.

We measure full-spectrum readiness through our five levers of readiness: critical skills availability, weapons system sustainment, training resource availability, flying hour program, and operational tempo. If airmen are not ready for all possible scenarios, especially a high-end fight against a near-peer adversary, it will take longer to get to the fight; it will take longer to win; and it will cost more lives. The following sections highlight key areas where Congressional support is needed in order to balance our five levers of readiness.

PEOPLE

Airmen are our greatest resource and our Air Force need to increase end strength to meet national security requirements. Manpower shortfalls in key areas remain the number one issue limiting readiness and is our top priority. At the start of 2016, our end strength stood at 311,000 Active Duty airmen, down from more than 500,000 during Desert Storm—a 38 percent decrease. Though we appreciate your support to build the force up to about 321,000 in 2017, we will still be stretched to meet national security requirements. To quote Senator McCain, we need to "dig out" more than "build up."

To improve readiness and attain manning levels matching our mission requirements, we are considering an increase to our Active Duty, Guard, and Reserve end strength and will work with the Secretary of Defense to develop the fiscal year 2018 President's Budget to address personnel shortages. Our Total Force model (incorporating our Active Duty, Guard, Reserve, civilians, and our contracted capabilities), not only recognizes the value of an integrated team, but helps guarantee today's and tomorrow's capability. We will develop plans to address shortfalls in a number of key areas, including critical career fields such as aircraft maintenance, pilots, NC3, intelligence, cyber, and battlefield airmen.

As we drew down Active Duty manpower in recent years, we have relied more heavily on our civilian airmen. Our civilians make up 26 percent of our Total Force—of which, 94 percent are in the field, providing vital mission support through weapons system maintenance, sustainment, engineering, logistics, security, intelligence, and medical functions. Currently, our civilian workforce is 96 percent manned. At the historical attrition rate, the civilian workforce will shrink to a 93 percent manning level over the next four months.

In the aircraft maintenance field, we were short approximately 3,400 aircraft maintainers at the close of 2016. Because of this shortage, we cannot generate the training sorties needed for our aircrews. The same pool of maintainers that keep our existing aircraft flying at home and in combat, must simultaneously support fielding new platforms. Due to an ongoing shortage of Active Duty aircraft maintainers, we will continue to fund contractors to fill the gap at select non-combat A-10, F-16, and C-130 units as our Active Duty maintainers transition to the F-35. This allows us to strike a balance between meeting today's demand while modernizing for the future, but masks the insufficient size of the force.

We also face a pilot shortage crisis across all disciplines, most acutely in the fighter community. The Air Force has the world's finest pilots who enable an incomparable duality of global mobility and combat lethality. As airlines continue hiring at unprecedented rates, they draw away experienced pilots. Without a healthy pool of pilots, we risk the ability to provide airpower to the nation.

Pilots are strategic national assets and the pilot crisis extends beyond the Air Force and military. It is a national problem which requires senior-level attention in Congress, the Commercial Industry, and the DOD. To address this national challenge, since 2014 the 'Air Force-Airline Collaboration', formally known as the National Pilot Sourcing Forum has increased efforts to effectively utilize and train an adequate number of pilots to meet our nation's pilot demand signal.

However, pilot retention has declined for five straight years. We ended fiscal year 2016 at 723 fighter pilots below requirement and 1,555 *total* pilots short across all mission areas. Pilot training and retention are priorities. The increased end-strength provided in the fiscal year 2017 NDAA will allow us to maximize the training pipeline and fill out under-manned units, which are vital to our recovery. We are grateful for your support to increase the pilot bonus, and we will continue to ensure our retention programs are appropriately sized and utilized.

NUCLEAR DETERRENCE OPERATIONS

We require additional resources to invest in our nuclear capabilities and infrastructure that are the bedrock of our national security. While our nuclear forces remain safe, secure, and effective, we require significant investment to ensure robust, reliable, flexible, and survivable nuclear readiness and deterrence well into the future.

On average, our B-52 bombers are 55 years old and our nuclear facilities are now over 50 years old, with many facility systems operating well past their 20-year designed life span. Currently, all of our weapons storage areas are operating with waivers and deviations from our high standards. Although these storage areas are uncompromised—they remain safe and secure—we must recapitalize this infrastructure to address the recommendations identified in our Nuclear Enterprise Reviews for facility and weapons sustainment.

Meanwhile, we must continue to invest in modernization of our air- and ground-based nuclear weapons systems. The B-2 and B-52 require upgrades, and we must ensure one of our main acquisitions priorities, the B-21 bomber, proceeds on schedule. In addition, our ICBMs, which provide the U.S. with a stabilizing and responsive strategic deterrent capability, are being maintained and operated well beyond their planned operational life-cycles and face significant sustainment challenges. The Ground-based Strategic Deterrent (GBSD) recapitalization program, which will replace the ICBM fleet, must proceed as planned in order to ensure the ground leg of the nuclear triad remains credible and effective in the decades ahead. Connecting the nuclear triad is our nuclear command, control, and communications (NC3) system. Accordingly, NC3 must be modernized to support accompanying nuclear capabilities.

Finally, we must modernize our nuclear stockpile, by continuing to support the B-61 modernization program, while investing in the development of the Long-Range Standoff weapon as a survivable air-launched weapon capable of destroying otherwise inaccessible targets in any conflict zone. Though we are grateful for modest relief of spending limitations that allowed us to address a scrutinized priority list of nuclear modernization efforts, we require additional resources to invest in foundational nuclear capabilities and infrastructure.

SPACE

Underwriting every joint operation across the globe is our ability to use the space domain at the time and place of our choosing. Our freedom of action in, through and from space can no longer be taken for granted. Our potential adversaries have had a front row seat to the many successes achieved by space integration into joint warfighting and, unfortunately, they are rapidly developing capabilities to deny us space superiority. In the not too distant future, our potential adversaries will have the capability to hold all of our military space capabilities at risk.

Space is a warfighting domain. The paradigm for space operations has shifted from a force enabler/enhancer to an integrated warfighting capability. As the Nation's lead service for space, we require additional support to build Air Force space systems, that are more resilient and agile. This means investment in capabilities to defend our space assets, while maintaining a cycle of continuous upgrades in each generation of spacecraft to ensure that systems are fully ready when called upon

by the joint warfighter and can continue to operate in an increasingly contested environment.

Maintaining assured access to space remains one of our top priorities. We are working to mature and advance our Launch Service Agreement strategy to develop affordable, sustainable launch capabilities that will eliminate dependence on foreign rocket propulsion systems. Second, we are developing Space Situational Awareness and Battle Management Command and Control (BMC2) capabilities, which underpin our efforts to integrate space into full spectrum joint operations. Investments in space situational awareness capabilities, such as Space Fence, ground-based radar and optical systems and on-orbit surveillance capabilities, like the Geosynchronous Space Situational Awareness Program (GSSAP) [our geosynchronous orbit “neighborhood watch”], enables critical battlespace awareness in space and the unprecedented ability to characterize the space operational environment.

Similarly, investments in the Joint Interagency Coalition Space Operations Center (JICSpOC) and the Joint Space Operation Center (JSpOC) Mission System (JMS) provide the decision superiority and data we need to deter attack, and, if necessary, defend our capabilities and freedom to operate in space. Lastly, space systems provide mission-critical services and capabilities to support our Joint Forces in theater and around the globe, every day. Continuing to modernize and replenish our missile warning, nuclear command and control, satellite communication and Global Positioning System constellations ensures we will have resilient, mission-assured capability to support daily joint operations.

Finally, we need to continue integrating our organizations and capabilities across both the DOD and the Intelligence Community, while improving training for our space force and cultivating an enduring cadre of space operators and acquirers. We must normalize and operationalize the space domain by maturing our tactics, techniques and procedures and “train like we fight,” in space, just as we would in any other domain to ensure we are fully prepared to deal with today’s adversaries and emerging technology.

CYBERSPACE

Cyberspace capabilities are essential to joint operations. The Air Force remains committed to providing 39 fully operational Cyber Mission teams by the end of fiscal year 2018. Today’s cyber teams are conducting ongoing offensive and defensive cyber operations in support of combatant commanders daily, therefore we must commit to a robust and resilient cyber enterprise.

Today, the Air Force cyber enterprise lacks sufficient numbers of trained cyber forces to meet the ever-increasing demands. Additionally, the increasing numbers of attacks on our cyber infrastructure and weapon systems, from state and non-state actors, continue to tax the limited personnel and tools to effectively defend critical assets and preserve freedom of movement in a domain where actions happen at the speed of light. Adequate and consistent resourcing over time will enable us to obtain and maintain cyber superiority in this highly dynamic warfighting domain.

Additional investments in cyberspace capabilities are required. We need to continue modernizing and developing offensive and defensive tools and measures to harden current infrastructures while baking cyber security into every new capability to counter cyberspace adversaries. This will ensure Air Force and joint force mission assurance—command and control, weapon system cyberspace defense, information dominance, and integrating offensive cyberspace effects into multi-domain operations.

COMBAT AIR FORCES

The average age of Air Force aircraft is 27 years. This is the oldest in our 70-year history. If aircraft required license plates, 54 percent of our platforms would qualify for antique designation in the state of Virginia. The ability to fly, fight, and win with aging aircraft is made possible by remarkable airmen in an all-volunteer force. Modernization can no longer be delayed ... it is the capability and capacity for a high-end fight. Today’s modernization is tomorrow’s readiness.

To continue to provide unrelenting air superiority and global precision strike, we cannot accept a less than ready force. With current combat readiness falling below 50 percent and an ever-growing demand signal, our Air Force requires an increase in combat air forces capacity. The more diminished our combat-coded fighter squadrons, the more degraded our ability to posture and project global power for America. At our current fighter procurement rate, it will take 45 years to recapitalize our full fighter force. We must also continue to procure the F-35 to counter rapidly advancing near-peer threats.

To ensure our airmen are ready to face any emerging or future threat, we need to provide our airmen with advanced threat testing, training, and associated technology. Our forces must have access to realistic test and training ranges and investment in computer-aided live, virtual, and constructive (LVC) infrastructure. LVC capability provides opportunities to test and train against the world's most capable threats, reduces costs, and supports full-spectrum readiness. Finally, we must have sufficient munitions to counter current threats, while developing advanced munitions to counter future threats.

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR)

The Air Force ISR enterprise is often the first in the fight and the last to leave ... providing continuous coverage of global threats and targets ... from the earliest surveillance of the battlespace, to after weapon impact. However, the demand for continuous ISR presence is insatiable and ever growing, and our ISR enterprise is strained.

Over the past 15 years we grew the RPA enterprise 1,200 percent ... and today we support 60 continual combat lines of persistent attack RPAs. Within current constraints, we are committed to improving quality of life and work for our airmen, and are prioritizing investments to create a dedicated launch and recovery MQ-1/9 squadron, increase training, and restore two MQ-9 operations squadrons. Additionally, we are training enlisted operators to fly the RQ-4 Global Hawk and funding a strategic basing initiative to eventually fly RPAs at new locations on schedule.

However, our ISR enterprise still needs help. More than 7,000 airmen working in our Distributed Common Ground System are over-stressed and undermanned. These airmen supported over 29,000 ISR missions, analyzed more than 380,000 hours of full motion video and disseminated 2.6 million images to our warfighters in the last year alone, attempting to quench the insatiable demand for ISR. They have operated at these surge levels for over a decade.

To meet the needs of combatant commanders, the RPA force may require additional airmen to achieve a healthy and sustainable force. Moreover, we continue to pursue emerging ISR Cyber and Space capabilities. We must also recapitalize our C2ISR platforms, such as our E-8C JSTARS aircraft, which provides a unique combination of airborne C2, communications, and high-fidelity moving-target surveillance capability. These capabilities are essential to finding and tracking our adversaries, conducting non-kinetic targeting, and ensuring Air Force weapon systems cyber mission assurance.

INFRASTRUCTURE

We project airpower from a network of globally positioned bases, and we must focus on maintaining these bases as part of our strategic force posture. However, our infrastructure, particularly our installations in the continental U.S., are in excess of our operational needs. This is an inefficient arrangement with aging and underused facilities consuming funds that should be prioritized for readiness and modernization.

Budget pressures have repeatedly delayed investments in aging infrastructure such as test and training ranges, airfields, facilities, and even basic infrastructure like power and drainage systems. Our infrastructure problem has only been exacerbated by the funding caps imposed under the BCA. Every year that we delay infrastructure repairs affects operations and substantially increases improvement costs. It is time for another round of Base Realignment and Closure (BRAC) to allow us to reinvest funds in higher priority areas across the Air Force.

CONCLUSION

Since 1947, the Air Force has relentlessly provided America with credible deterrence and decisive combat power in times of peace, crisis, contingency, and conflict. However, our relative advantage over potential adversaries is shrinking and we must be prepared to win decisively against any adversary. We owe this to our nation, our joint teammates, and our allies. The nation requires full-spectrum ready air, space, and cyber power, now more than ever. America expects it; combatant commanders require it; and with your support, airmen will deliver it.

Senator INHOFE. I thank all of you for your opening statements.

I see this as I did 22 years ago in this committee, not just to get our state of readiness where it should be, but also to tell the truth about how unready we are. I think you did a good job of that, General Wilson.

Admiral Moran, the thing that probably came out that shocked most people from yesterday was your statement about more than half the F-18s are not running. I mean, people need to hear that, and they need to hear it from you guys who are at the top and who are in a position to say it with more credibility certainly than I can say it.

We know where we are right now. We know there are problems we have. Senator Kaine and I are in very much agreement. In fact, we have a mutual friend who put us together several years ago, and we have a friendship. There's a little bit of difference in how we see what has happened during the last administration, the idea of finding ourselves where we have to do something about sequestration, we have to do something about the deterioration in the funding and the capabilities of our military.

As we do that, we don't want to be in a position that for every dollar we do that, we have to do it for the non-defense. I mean, that philosophy tells me that the priority is not what I interpret the Constitution, and I told you all of this when you were in my offices. I think it's important that we recognize that we're going to have to do a lot of rebuilding here, and we have to tell the truth. When you talk about we're pretty good forward but we have nearly an empty bench behind, that's a serious thing.

You've heard a lot of the talks recently. You've heard the figures, as some of you have referred to, the Army going to 540,000 ships, 355 marines to 36 battalions, and 1,200 fighter aircraft there for General Wilson. These are figures that it's going to be hard to actually come out for exact figures. We talked to [Secretary of Defense] Mattis about these same figures, and they recognize they do represent an enhancement that has to be there.

I want to start off by asking each one of you how realistic you think these figures are, not as if they're going to be exact but are they in the ball park of the threat that's facing us now.

We'll start with you, General.

General ALLYN. Thank you, Chairman Inhofe. I'll start by—

Senator INHOFE. I neglected to say if there's no objection, we'll use 7-minute rounds because we're going to have to do this in one round.

Go ahead.

General ALLYN. I'll ignore this 4-minute ticker on my screen here.

Senator INHOFE. Just ignore that.

General ALLYN. Yes, Chairman Inhofe, the Secretary of Defense has directed a strategic review that we expect to result in an adjusted force sizing construct. As the Chief of Staff of the Army has highlighted in prior testimony, the estimate that 540,000 in the Active force reflects is a subset of what would it take to get the military risk level to respond to the contingencies that we face and the operational plans of our combatant commands down to a moderate level.

Senator INHOFE. You're talking about moderate risk.

General ALLYN. A moderate risk level. That would require a 1.2 million total force. Now, if we get adjusted guidance, obviously we will do our internal due diligence to determine exactly what the

right number is. You asked is it in the ballpark; it's in the ballpark.

Senator INHOFE. All right, and I appreciate that. You know, when you talk about risk, I would hope you would always make sure people understand. You talk about risk, which talks about readiness, which talks about lives. We're talking about lives now, that's how serious that is.

Admiral Moran?

Admiral MORAN. Yes, sir, Chairman. The number you quoted was based on our force structure assessment, which was done over the past year. I would tell you that that's a good target to start ramping towards. As you know, in shipbuilding, it takes years just to get to one ship. We're going to have many years to assess where new technology takes us, new war-fighting constructs.

As I said in my opening, we know we're too small for what we're being asked to do today, so we have to get on a ramp to not only arrest the decline, which I think we're on in President's Budget 2017 [President budget for fiscal year 2017], unsequestered, and with an appropriations bill. It's a target that's worth shooting for, at least in the beginning ramp of the next four or five years.

Senator INHOFE. Okay, that's understandable. Would you repeat your characterization of our capability of our F-18s?

Admiral MORAN. Yes, sir. The facts are that for our entire Hornet fleet, it's the Hornets and Super Hornet fleet, we have 62 percent on a given day. Yesterday was 62 percent. I doubt it's changed much since yesterday. We're in about 62 percent that are not flyable.

Senator INHOFE. More than half.

Admiral MORAN. More than half. On a typical day it's about 30 percent if everything's going well, about 30 percent that's either in depot or on a flight line that's not flyable. We're double where we should be in non-flyable aircraft.

Senator INHOFE. Thank you.

General Walters?

General WALTERS. Yes, sir. The figure of 36 battalions for us, that's a reasonable target to shoot at if it's a total force number. More importantly I think is if we grow end strength. I mentioned that we have done 18 months' worth of analysis on what capabilities we need. They're everywhere from ISR, IO [information operations], counter-UAS [unmanned aircraft system], which is nascent but required and I think a need right now, long-range fires.

Before we build another capacity, we need to fix the holes that are in our current organizations. That's a smaller number, 194,000 is about that, before you start buying any additional capability. That's a strategic choice that needs to be made, and a strategic review will look at that.

I think the 36 battalions comes from a 2-thing strategy, doing 2 things simultaneously. I can tell you today we cannot do two things simultaneously, and one of the stressing ones for us is Korea. We couldn't do that at all if we still had commitments elsewhere in the world—Europe, Africa, or the Middle East.

Senator INHOFE. You know, they don't use that anymore like they used to, two worldwide conflicts almost simultaneously.

General WALTERS. Yes, sir, and I think our enemies know that.

Senator INHOFE. Because it's a recognition we're not there.

General WALTERS. Yes, sir, and I think our enemies know that, too.

Senator INHOFE. Yes, I think they do too.

General Wilson?

General WILSON. Chairman, I told you yesterday that we're at about 50 percent readiness today across the Air Force. We're at the smallest Air Force ever in 2016, when we bottomed out at 310,000. Just last year we finished the year at 317,000. We want to grow our force to 321,000 this next year. We think the target we're shooting for is 350,000 airmen in the United States Air Force. That number fills 100 percent of our current manning documents. That's a current mission. That's no new mission. As mentioned by General Allyn, it's a strategic defense review that looks at where we need to be. That number can be adjusted even up. We think 350,000 is the number for our airmen.

We think we need 60 fighter squadrons, in addition to modernizing our nuclear force and our space forces.

Senator INHOFE. I want to get to one other area before we go around, and that is when you're going through a starvation period, you have two problems. One is it's at the expense of modernization and maintenance. First of all, do you agree with that?

What I'd like to have is just for each one of you the area of modernization that needs to be enhanced now because you've had to let that go, starting with you, General Allyn.

General ALLYN. As we testified last year, Chairman Inhofe, we've had most of our modernization programs on life support for the last several years. We are currently—our modernization program is 50 percent of what it was in 2009. In 2009, it was \$48.5 billion. It's \$24.8 billion this year, and it's inadequate to modernize for the near term, let alone the long-range future force that we know we're going to require on a multi-domain battlefield.

We would prioritize against our near-peer competitors to ensure our current platforms are the best that we can possibly field, and then begin to work on the new equipment that we would need.

The good news about modernizing current equipment is it's shovel-ready today if the resources are provided.

Senator INHOFE. Thank you.

Admiral?

Admiral MORAN. Senator, as you know, modernization for us also comes in the form of maintenance. We modernize our ships while they're in maintenance, just upgrading radars, weapon systems, those sorts of things. In terms of platform modernization, our top priority is the *Columbia*-class to replace the *Ohio*-class of submarines. We're at the end of service life in *Ohio* if we don't start this year. We appreciate the anomaly in the current CR [continuing resolution] environment for *Columbia*.

Second would be a close call between building to the 12th nuclear aircraft carrier *Ford*-class to get us to a total of 12. Then DDGs and SSNs, probably SSNs over DDGs if we had to prioritize them, simply because we're already very low on our SSN numbers, and are going lower over time. That's a key capability for us.

Senator INHOFE. Okay. Generals Wilson and Walters, you answer for the record since we're out of time here. Keep one thing in mind,

and that is when you're looking at the future, you don't know really what you have to—I always remember the last year I was on the House Armed Services Committee, we had a witness. This was in 1994. They said that in 10 more years we will no longer need ground troops. You don't know. You're predicting in the future; it's very difficult to do.

If you want to meet the expectations of the American people, you have to be superior in all areas, which we're not.

Senator KAINE?

Senator KAINE. Thank you, Mr. Chairman.

Thanks to the witnesses.

First a general question for all four of you based on your verbal testimony. Would you agree that a comprehensive national security strategy would require a repeal of sequestration not only for defense but also for the non-defense accounts that directly bear upon national security?

General ALLYN. Senator Kaine, absolutely. We require a new national security strategy to guide both the military capability that's required and the other elements of national power that would be integrated to whatever solution we would need to deliver around the world.

Admiral MORAN. I would agree with General Allyn, sir.

General WALTERS. I agree, sir. The entire nation's power needs to be brought to bear.

General WILSON. I agree.

Senator KAINE. Thanks, General Wilson.

General Allyn, in your verbal testimony, in talking about readiness, you talked about the link between readiness and our ability to recruit and retain our best talent, and I'd like you to elaborate on that a little bit. What's the connection between these readiness discussions we're having and the ability to recruit and retain?

General ALLYN. Thank you, Senator Kaine. As I talked in the intro of the conversation, the Army is people. At its core, our primary weapon system is our soldier. Unless we can continue to assess the great champions that continue to join the United States Army every day and retain the best, we cannot sustain the tempo that we are executing each and every day around the globe.

We have really endured the last several years of the drawdown on the backs of our soldiers who have been willing to extend the time deployed, reduce the time at home, and carry that load. We cannot continue to bear that burden into the future without severe readiness impacts. If we don't have soldiers manning our forces and carrying our weapons, we don't have anything. That is job 1 for us.

Now, the good news is we are successfully recruiting the force that we need, and we are seeing very positive signs in retention. In response to the NDAA 2017 authorization, our first step was to try to retain more of the current force, and within the first 30 days of this effort 2,500 have said I want to extend on this great team. We are encouraged by that, but we know that this is a long-term effort, and we have to stay after it.

Senator KAINE. Thank you.

Admiral Moran, you and I talked in my office about the maintenance of ships, and as you point out, maintenance is modernization

for a lot of what you do. If we're down from the 300 and teens down to 275, doesn't that make the maintenance of the remaining 275 even more important?

Admiral MORAN. Yes, sir, it absolutely does.

Senator KAINE. Talk to me a little bit about the shipyards, and I'll stay with Admiral Moran because there was an implementation guideline on the civilian workforce hiring freeze that was last week issued by the Deputy Secretary of Defense, Secretary Work, and he authorized certain exemptions for positions in shipyards and depots that perform direct management of inventory and direct maintenance of equipment. Nevertheless, that hiring freeze still is affecting your shipyard and depot workers, and many of them are nearing retirement. If this hiring freeze were to continue without adjustment, talk a little bit about the effect that that would have on shipyards in particular.

Admiral MORAN. Yes, Senator. I'm mindful of the fact that we've got several members here that have shipyards that are very concerned.

Senator KAINE. Yes, I'm trying to beat the question—
[Laughter.]

Admiral MORAN. Yes, sir. We have some pretty good assurances that the hiring freeze, the temporary hiring freeze that's been put into place, that we will be able to get exemptions for our depots and our yards. We are still working through the mechanics of that, though. The Secretary of the Navy, who has been delegated authority to allow for these exemptions, has to sign each person's exemption, or can we do these in groups based on the lower echelon input? We're working through those details, but I think you'll be pleased to know that we're going to get through this in the very near term.

To your point, if it were to endure, we're back to sequestration, furlough levels of 2013, that was devastating to our force, and we don't want to go there.

Senator KAINE. Could I have the other members of the panel talk a little bit about what the hiring freeze would mean if it continued?

General WALTERS. Sir, I'll just give you a short example. We're doing a lot of planning to increase readiness and grow the force and do these things. I'm short contracting officers 50 percent. If I can't hire contracting officers, we can put any plan we want in place, we can put the money in place, but I can't execute it, it's not going to come to fruition. That's one of our challenges.

Senator KAINE. General Wilson?

General WILSON. You mentioned shipyards; depots are the same way. We need to be able to—today, 96 percent of our civilian workforce works outside of Washington, D.C. They work in places like our depots or on our flight lines. If we can't hire, that has a direct impact to readiness. We're confident that we can get the procedures in place to move through this, but we can't have it slow down the hiring.

General ALLYN. For the Army, we've begun to triage our depots based on those temp and term hires that were about to expire. We've worked through February. We're just about through March, and we find that the waiver is meeting the need that we have for our commanders, and we have a direct link between our com-

manders and the Secretary to ensure that bureaucracy does not get in the way of taking care of our people.

Senator Kaine. I'm going to use the remainder to allow General Walters and General Wilson to answer the question that Senator Inhofe asked, because I was really interested in the prioritization, if there were restoration of funds, what are some of the highest priority items that you've not been able to do that you would want to do, and I think this is really important testimony to get on the record today.

General WALTERS. Yes, sir. We are like all the other services that have taken hits in modernization. We're at about 50 percent of where we were even 5 years ago. It caused us to make decisions. Our ground combat vehicle program, our 40-year-old amphibious vehicles, our Humvees need to be replaced, and we have programs for that but they're a very, very minimal amount, minimum sustaining rate, and it caused us to do things like an obsolescence program on our light armored vehicles instead of buying new ones. We're putting—I don't like the term "band-aid," but we're putting that program on a light armored vehicle when we really should be buying a new one.

Senator Kaine. General Wilson?

General WILSON. Senator Kaine, just like Admiral Moran talked about, our first priority would be nuclear modernization. We delayed investment in that for far too long. Today we have 75 less F-35s than we had planned on in 2012. The F-35 program is a significant modernization program going forward.

Additionally, the KC-46 and the B-21 are significant programs going forward. Today's modernization is tomorrow's readiness, and right now our average fleet is over 27 years old. We've got 21 of 39 fleets of our aircraft that exceed the 27-year average. Building this new capability will help the modernization going forward.

Admiral MORAN. Senator, if I could add, if you don't mind, General Wilson reminded me that for Navy I was focused on the shipbuilding part, but aviation is clearly a priority, either in the near term buying Super Hornets to replace the Hornet fleet, the legacy Hornet fleet, but also we're in the same position. We are well behind where we wanted to be when it comes to the F-35. Those are two very important modernization—

Senator INHOFE. I know that's true, along with the pilot problem, which I'm hoping members will get into.

Thank you, Senator Kaine.

Lieutenant Colonel Ernst?

Senator ERNST. Thank you, sir. I appreciate that.

Gentlemen, thank you very much for being here today. I told a friend earlier today that I think what I'm going to hear from you gentlemen today is very similar to what we heard from last year, and that's extremely disappointing I think for all of us. Thank you for working under such tight constraints.

General Wilson, I'll start with you. The Iowa Army Ammunition Plant produces components for some of America's most advanced ammunition. Since 1941 it has played a role in ensuring America's forces are ready, and I noted in your written statement that you say we must have sufficient munitions to counter threats. You're

stating in your opinion that your munition supply is low; is that correct?

General WILSON. Yes, Senator. Today we're expending about—well, in the ISIS fight we expended 43,000 munitions. We're spending about 1,500 a month. Replenishing that stock we think will take about a billion dollars a year of added investments over a significant period of time, just to replenish those stocks. Our preferred munitions to meet all the combatant commanders needs, we have a deficit across all of them that we need to dig our way out of.

Senator ERNST. As far as Congress is concerned, simply by providing the dollars necessary, you would be able to secure those munitions?

General WILSON. Yes, ma'am. We've put investments not only into the munitions but into what you described, the infrastructure that makes those munitions. All the plants that produce the fill for the munitions are part of the investment going forward. It's a significant investment we believe of about a billion dollars a year for about a decade, just on munitions.

Senator ERNST. Very good. I appreciate that. Thank you very much, General.

General Allyn, thank you. I appreciate you leading the way in everything that you do in your travels around the globe to visit our soldiers. That has been very important, and it has been noted in many conversations that I've had. Thank you so much.

You stated that our greatest asset is our soldiers, and I firmly believe that. I believe that we have some of the finest young men and women out there. As you know, I've been a long-time proponent of upgrading small arms capabilities within the Army, and I know, I know that readiness begins with the individual soldier. If they are not ready, none of our higher echelons can be ready.

I do commend the Army's recent action on upgrading its handgun. I did receive a call from the chief, and I was glad to hear about that. The fact remains that it took far too long for that to happen, but we are on our way.

Russia continues to upgrade its rifles, and this really needs to be a priority as well for the Army.

Again to you, besides more money, what can we do to upgrade other small arms, and how can we do it faster?

General ALLYN. I know that you're aware we have a soldier enhancement program that is part of our program executive officer soldier, and we are focused on a number of initiatives to ensure that our soldiers have the best possible equipment as they go into combat in the future, as we have been able to do in the past.

We have many of those programs, just like every other modernization program that we have. For instance, our multi-year programs for our aviation fleet are all on the floor, right? They're absolutely at the minimum level to keep those contracts alive. We cannot operate that way. The unit cost for every aircraft is increased each time we do that, and yet year over year we're put into this dilemma.

In our soldier portfolio I can provide for the record specifics, but having reviewed that in detail and visited PEO [Program Executive Office] soldier at Ft. Belvoir, we have a number of lighter, better human dynamic and next-generation FLIR [Forward Looking Infra-

red] capability that we need to get to the force. We've got to have money to enable that to happen, so I appreciate your continued support as we move forward.

[The information referred to follows:]

The Army is actively taking steps to accelerate development, procurement, and fielding of improved U.S. Army small arms capabilities across the board. Small arms continue to provide a critical capability in the overall effort to ensure the U.S. Army is and will be the dominant power on any current or future battlefield. A new Maneuver Force Modernization Strategy, which addresses soldier weapons to the platoon level is currently under development at the Maneuver Center of Excellence, and should be completed in third quarter, fiscal year 2017 (FY17). The Army also leverages the Soldier Enhancement Program (SEP). The SEP is designed to evaluate existing prototypes or commercially-available items that can enhance soldiers' capability. Specifically, the following initiatives are in progress: The Army completes the pure-fleeting of the Force with the M4A1 Carbine NLT FY23; Fielding of the Squad Designated Marksman Rifle begins in fiscal year 2019; Fielding of the Precision Sniper Rifle begins in fiscal year 2020; the M3 Carl Gustaf 84 millimeter Recoilless Rifle is in fielding to Infantry Rifle platoons now and the lightweight Carl Gustaf begins fielding in fiscal year 2020; and, ammunition improvements are synchronized with weapon system enhancements to enhance range and lethality. Further, when the Small Arms Ammunition Caliber Study concludes in March 2017, the requirements for a Next Generation Soldier Weapons (NGSW) will be finalized. The NGSW family of small arms will replace current squad (rifle/carbine, squad automatic weapon, and sub-compact) weapons with production slated for fiscal year 2023.

Senator ERNST. Outstanding. Thank you, General.

Admiral Moran, thank you. I enjoyed our conversation the other day. We agreed that readiness is really a mutual obligation, something that we have to commit to in the Congress. You committed to continue to look for ways to make major acquisitions like the *Ford*-class carrier and the F-35C more efficient. That's imperative. I recognize Congress' responsibility to provide better budget planning and execution.

Can you commit to me here again that you're going to hold programs like the *Ford*-class carrier accountable?

Admiral MORAN. Yes, ma'am, absolutely.

Senator ERNST. Thank you. In our meeting you painted a very grim picture of our Navy's current state of readiness, and I think ensuring that we are being fiscally conservative with major programs like that is key to establishing that readiness.

A question for you and something that we just briefly touched on. If our Navy had to answer to two or more of the so-called four-plus-one threats today, could we do that?

Admiral MORAN. I hate to use the lawyer answer here and say it depends, because it does depend on which two of the four we're talking about. To answer it more specifically than that, I think we probably need to go into a closed hearing to really fully flesh that out for you. We are at a point right now, as I said in my opening and in my written statement, that our ability to surge beyond our current force that's forward is very limited, which should give you a pretty good indication that it would be challenging to meet the current guidance to defeat and deny in two conflicts.

Senator ERNST. Absolutely. Thank you very much, Admiral.

Finally, just very briefly, General Walters, you listed the growing concern for the end strength as one of your top priorities. Right now it looks like you're going to have to pull in 3,000 marines a year to meet those recruiting goals. Is that accurate?

General WALTERS. To be quite accurate, Senator, we think we should not grow any faster to ensure our standards are met.

Senator ERNST. Very good. Given that——

General WALTERS. We'll buy their——

Senator ERNST. Very good. The legal answer.

[Laughter.]

Senator ERNST. Given that women make up about 50 percent of our population, actually a little bit more, that's a good place to start. Do you have a plan for utilizing women? What role will they play as you try and increase your readiness and reach your desired end strength?

General WALTERS. As you well know, the policy now is that all MOS's [Military Occupational Specialties] are open to women in the Marine Corps. We have a battalion that's starting a great woman right now. I can't report to you on any results of that. We have three female infantry down there and three in the staff, and that was out of 380 that were trained and three volunteered. We've turned the recruiters to start recruiting for that MOS, and we have 13 in the pipeline right now. It's going to be the law of small numbers for a while, I believe.

Senator ERNST. Great. Well, I appreciate it very much, General. P.S., the marines need more amphibs.

Thank you. Thank you very much.

Senator INHOFE. Thank you.

Senator Shaheen?

Senator SHAHEEN. Thank you, Mr. Chairman.

Thank you all for being here today and for your service to the country.

I just want to pick up on Senator Ernst's comments about handguns for the Army and point out that I was very pleased to see that get done and very proud to report that those handguns are going to be made in New Hampshire by Sig Sauer, which is an excellent company. You're going to get the best.

Admiral Moran, as we discussed when we met, one of the things that I found very concerning was when the first meeting of the Navy caucus met last fall, that Admiral Richardson said to us that the Navy no longer plans any spending in the first quarter of the new fiscal year because of the ongoing continuous resolutions that you all have had to deal with and the uncertainty that that means.

I think we are probably looking at another CR for the remainder of this year, and I wonder if each of you could identify what you think will be the most challenging impact of that CR as you look at what you're facing in this current budget situation.

General ALLYN. Thank you, Senator Shaheen. I'll start, and I know they'll be ready to pile on here.

Our fiscal year 2017 NDAA authorized an increase in our operations maintenance account of over \$4 billion. None of that will be executable under a continuing resolution. That will have severe implications to not only planned operations here in the homeland but OCO missions as well, contingency operations overseas. That will be a significant problem.

We also have 50 new starts that are part of our President's Budget for 2017. None of those will get started.

To the point that Senator Ernst made about ammunition, we also have a severe backlog in our war reserves which we were trying to get after by increasing production at our plants and facilitating those plants. None of that will be possible under a year-long continuing resolution.

That's just the top couple for the United States Army.

Senator SHAHEEN. Thank you.

Admiral MORAN. Senator, thanks for the question. The top for us would be deferral of 14 ship avail, to include one submarine that would add to the current bow wave for backlog that we have, which is rather enormous. We would probably—we will begin to shut down two air wings completely. That means no flying for two air wings, and we'd go to what we refer to as tactical hard deck for two additional air wings, which is 11 hours a month per pilot, just to keep them safe. Then we would—well, it would definitely impact the other flight hour accounts which do pilot production, so where we train pilots to become pilots. I'm about to go over to the Naval Academy tonight to welcome the newest selectees for naval aviation. I'd hate to tell them that they're not going to be able to train to be pilots for a while. That's what we're being faced with if we go to a year-long CR without trading, moving accounts around where something else has to give.

Senator SHAHEEN. Thank you.

General Walters?

General WALTERS. Yes, Senator, I'm with the Navy on this one. The definition of a CR is spending at [fiscal year] 2016 levels. Our flying hour accounts are nowhere near. I think I testified yesterday that if we don't get a supplemental, we'll probably stop flying in July. It could be more. We could burn through our 2016 levels because we have more RBA [ready basic aircraft] aircraft in 2017 than we had in 2016, and that's how it works. That would be the effect on us.

Senator SHAHEEN. Thank you.

General WILSON. Senator, we would have a \$1.5 billion math problem to make up. It would impact 60 new starts. To meet that math problem, we'd have to directly—the only place we can go for money is our readiness accounts. It would be flying hours, WSS [weapon systems sustainment], or facilities, FSRM accounts. Much like the rest of the service, we'd stop flying in the summer, we'd backlog the depots, we'd have to delay, further delay any modernization of our infrastructure on our bases. The thing we're trying to stop or dig our way out of, readiness, would impact the most.

Senator SHAHEEN. Thank you all.

General ALLYN. If I could, Senator—

Senator SHAHEEN. Please.

General ALLYN.—just to add for all of us, you authorized an end strength increase. That would not be funded. We would be starting that hollow force revisit. At least when I joined the United States Army, we were coming out of that, and we would be starting back down that precipice.

Senator SHAHEEN. Well, I think I've heard everyone on this subcommittee and everyone on the Armed Services Committee say that we can't let that happen. Shame on us if we don't take action to address it.

General Wilson, I was distressed to read in your testimony that pilot retention has declined for five straight years. To what do you attribute that? Is it the uncertainty that people are facing, the lack of readiness to be able to train? Or is there something else going on?

General WILSON. Senator, there are a lot of factors at play here, but let me try to give you a snapshot of a couple of them.

It is lack of flying, because pilots join the Air Force to fly. There are different categories, but today's fighter pilots are flying about 75 to 80 sorties a year, and they're flying about 140 to 150 hours a year, total. That's significantly down from before. They come into the Air Force to fly.

We've got lots of efforts underway to improve the culture of the squadron, to see what a 21st Century squadron looks like, and how do we remove the impediments that keep pilots from doing what they want to do. Whether it be reducing additional duties or their ancillary training, improving their quality of life, we're working on those efforts.

The other part of it is there's an ops tempo that goes on. Again, if I take a fighter squadron, for example, the Shaw fighter squadron that flies F-16s, when they're in the bucket to deploy, that year they average 260 days a year gone from their families. On the year that they're back home, not deployed, they're averaging 110 days TDY [temporary duty] to do other things, red flags, other exercises, so they're gone a lot.

At about that 11-year point, the family makes a decision do we continue doing this, and the airlines are hiring and they're paying a lot of money, and is this a better stability for us. We're trying to get after this problem, and I can talk more on the pilots because I don't think it's an Air Force problem or a Navy problem or a Marine problem; it's a national problem that we're going to have to get our arms around to get after.

Senator SHAHEEN. Thank you.

One of the issues that we've been following very closely in New Hampshire is what's happening with the KC-46 new air refueling tankers. I just learned that the delivery, that first delivery of aircraft has slid by about six months. Will that have an impact on our readiness? How will that affect what's happening?

General WILSON. Senator, we all think it won't impact readiness per say because we're going to keep the number of KC-135s and KC-10s, and as we bring on the KC-46, once we get to the 479 tankers, then we'll start one-for-one replacing KC-10s and taking them out of the fleet. It's not ideal, we wanted to be on time, but we slid a little bit. After the initial batch of 3 per month, then we're going to go to 1.5, 1.25. That slide in adjustment has made about a 6-month delay.

Senator SHAHEEN. Thank you.

Thank you, Mr. Chairman.

Senator INHOFE. Thank you, Senator.

Chairman McCain?

Senator MCCAIN. I thank the witnesses, and I only wish that all members of Congress could hear the testimony today as we again fight the battle of sequestration.

I only have one question, and I don't want to take the time of my colleagues. In late 1970s, some of you may recall or know that the Chief of Staff of the United States Army came before Congress and said that we had a hollow Army, and that caused significant repercussions throughout the Congress and the nation.

I'll begin with you, General Allyn. Do we face the prospect of a hollow Army?

General ALLYN. Thank you, Chairman McCain. My belief is if we continue with a continuing resolution, and if we do not eliminate sequestration this year, then we will be faced with the likelihood of beginning that dive toward a hollow force.

Admiral MORAN. Senator, I believe that the sign of a hollow force is when no one wants to stay in the force, and I think the longer we go, to General Allyn's point, with reduced funding and an inability to allow our young men and women to do what they joined to do, to serve their country, they'll walk, and that will lead to a hollow force. We're under threat here in the next few years if we don't get our fiscal house in order.

General WALTERS. Chairman, same for us. If we don't give them the new equipment, they won't stay around; and that, by definition, at least in my mind, is a hollow force.

General WILSON. Chairman, I would agree with everything that's been said. As we look at the time period you talked about, the late 1970s, at the depth of the hollow force, we're flying less sorties and less hours today than we were then.

The good news is we saw how we got there and we saw how we get out of that, so we know what's required to do that. We know that it takes, first of all, manpower. Once we fix the manpower, then we get the right training. With the right training, we get the weapon systems support, we get the flying hours that we need, we fix the infrastructure, and we can dig out of this, but we have to start now.

Senator MCCAIN. Thank you.

Thank you, Mr. Chairman. Thank you for holding this hearing.

Senator INHOFE. Thank you, Mr. Chairman.

Senator ROUNDS?

Senator ROUNDS. Thank you, Mr. Chairman.

Gentlemen, thank you for your service to our country. Sometimes we don't say that enough. We appreciate what you do.

I want to just work through some anecdotes that we've learned about, and I'd like your thoughts on them, and perhaps this brings some focus to the day-to-day operations and some of the challenges that you have and your team has. If you don't feel comfortable discussing it in this category, please let me know.

Admiral Moran, I'd like to start with you. Can you talk about the submarines that you've got right now, their capabilities right now and whether or not, specifically with the USS *Boise*, what the challenges are and the current position?

Admiral MORAN. Senator, thanks for the question. First of all, our submarine force is the finest in the world, unquestioned. We are lacking capacity in the long haul. If we don't turn around our procurement of *Virginia*-class submarines, we're going to be down in the low 40s by the middle of next decade. That's the lowest point I can recall. We ask an awful lot of that force.

To give you an indication of where we are with this smaller Navy running harder than it has in a very long time, we are out in our public yards, the priority to fix ships in our public yards are our nukes, starting with our boomers because of the national strategic deterrence, followed by our aircraft carriers, and then we get down to the SSN world. Because of the capacity limitations and the workforce limitations that we've had, and our inability to get some of our submarines or some of our work assigned to the private yards, we've had to delay submarines like *Boise* for an extended period of time.

Boise was scheduled for a 24-month availability. They are now on 47 month. In that time, the CO [commanding officer] has come——

Senator ROUNDS. May I just make this point?

Admiral MORAN. Yes, go ahead.

Senator ROUNDS. What you're telling me is that you've got a nuclear submarine that, because it doesn't meet readiness standards, you can't take it out and utilize it today.

Admiral MORAN. Even while it's waiting for maintenance, it is not certified to dive because of the length of time it's been parked. Yes, sir, that's true.

The last piece of that that's important is that, much like *Albany*, another SSN, which also was extended for 48 months, that CO started the avail and finished the avail having never left the yard to operate that submarine. The XO [executive officer] and the chief engineer, I believe, neither one of them promoted, and the entire crew never deployed. We're on path to do that with *Boise* if we don't get her going. We're looking hard at the private yards to fix that problem.

We have four additional, upwards of five additional submarines this year who are going to have to go for an extension to their dive certification. They're in a similar situation. We think we get most of those extensions by NR [naval reactor], but if they don't, then we have a similar problem with some of them as we have with *Boise* today.

Senator ROUNDS. It's one thing to build to buy new. It's another thing to take care of the stuff you've got, which is suggesting that while we're talking about buying new, we're not giving the resources to even take care of the equipment that we've got today necessary for your operations.

Admiral MORAN. We often trade readiness dollars to pay for current operations and making sure our kids who are overseas on deployment have everything they need.

Senator ROUNDS. I understand right now it's not just the ships themselves, it's not just the boats themselves. When you talk about manning them and equipping them, is it true that right now there have been cases in which you've had carriers moving back out of the areas of forward operations into the back areas and trading them off and literally having to stop midway and trading munitions from one ship to another because you don't have the resources right now to maintain two?

Admiral MORAN. All of the services are struggling with munitions stocks, and we're no different. When our carriers swap places, one coming home and one going on deployment, they often have to

offload some of their munitions to fill the stocks of the one that's going on deployment. That is true.

Senator ROUNDS. Not necessarily the best way to run an operation.

Admiral MORAN. Not if you're going to turn that carrier back around if something happens in the world like has happened in the last 5 years, that's true. Yes, sir.

Senator ROUNDS. Thank you. Let me just ask with regards to the tankers right now that we've got, I don't think we can go anyplace in the world right now without having any one of our aircraft having the availability of a tanker. What's your current status on tankers, and what are their capabilities today, and what would you expect them to be in order to meet the ongoing needs of the Air Force?

General WILSON. Senator, we certainly are flying KC-135s today. We're bringing on the KC-46, which is brand new. We'll start delivery this year. We're flying KC-10s to keep 479 booms in the air. You're absolutely correct, we've become a global Air Force because of our tanker force that can move us around the world. As I highlighted in my opening testimony, the strike in Libya would have never happened without 18 different tankers taking off from bases in the United States, Europe, and the Middle East to make that mission happen.

Our tankers are getting old. That's why the KC-46 is so important going forward and why it improves everything. It improves MC [mission capable] rates to have more of them to fly, aircraft availability. It improves capacity. The KC-46 modernization program is the first step to modernize the tanker force. Largely it was built in the 1950s, modernized along the way. We find tankers, KC-135s, with tail numbers of 56, older than I am, and I'm an old guy, out there on the ramp. As we've talked about, the maintainers who maintain those do Herculean efforts to keep all those airplanes ready.

Senator ROUNDS. Let me ask you about your pilots right now. How long does it take you right now to train a pilot, and how long under optimum conditions should it take you based upon the availability of aircraft that are air worthy today?

General WILSON. Senator, today, to produce a basic pilot takes a little over a year. From that time, then they'll go on to their training school. Depending on what they're doing, it takes anywhere from four to eight months to a year to get what we call mission ready. Then after that they'll go off to their units.

Our training path is pretty much at capacity. We're producing about 1,200 pilots a year. We think we can grow that to about 1,400, and then we'll max out the current capacity to produce pilots. Our problem isn't getting pilots on the front end. It's basically retaining them on the back end, and then in the middle of that being able to absorb them, getting them all the flight time and training that they need. The hours of sorties have been coming down across the force in the last decade.

Senator ROUNDS. I had a chance to visit the F-35 base, the training base in South Carolina yesterday. I noted that you've got up-to-date models that are flying right now. They've got good operational capabilities, Admiral, and that basically that B model right

now is operational and ready to go. The one thing that I discovered is that you guys could use more of those in an expedited manner to make up the difference. That aircraft where for a while there were program problems, right now you're using some updated software in it, and they're flying, and they've got a good operational capability.

The aircraft in its current condition, we can use those in combat today, can't we?

General WALTERS. Yes, sir, we can. The software upgrades need to continue to give us full capability. It needs to deliver on time.

Senator ROUNDS. I was very impressed with what you're doing down there, and I appreciate it, and thanks for the opportunity.

General WALTERS. Thanks for visiting the marines down there, sir.

Senator ROUNDS. Thank you.

Thank you, Mr. Chairman.

Senator INHOFE. Thank you.

Senator Hirono?

Senator HIRONO. Thank you, Mr. Chairman.

Thank you all for your service and leadership.

Admiral Moran, thank you very much for your commitment to making sure that we move ahead with a waiver of the hiring freeze at our shipyards. Pearl Harbor Navy Shipyard is very important to our national security, as well as to Hawaii.

General Wilson, in your prepared testimony you state that today's Air Force is at risk of becoming a second-best hand, with readiness hovering near 50 percent. Can you explain for the American public what this means in terms of what the Air Force can and can't accomplish in terms of its mission? In your opinion, how much additional budget relative to recent budgets would the Air Force need, and how much time would it take to get readiness levels to much more acceptable levels?

General WILSON. Let me start with—I used an example, Senator, of how long does it take to grow an 8-year tech sergeant. It takes 8 years, and that's the type of experience we need and I think it's going to take to get to the readiness levels that we need. It's not going to happen in one year or two years. We're looking at 6 to 8 years to bring the readiness level back up to 80 percent.

When I talk about the United States Air Force being 50 percent ready, there are pockets of the Air Force that are significantly below that. Let me give you a snapshot again. To go back to the Desert Storm timeframe, in 1991, our Air Force stood at about 500,000 active airmen, 134 fighter squadrons. Today we have 55 fighter squadrons, and that's Active, Guard and Reserve. Of that, 71 percent are deployed today or are doing COCOM-assigned [combatant command] missions, homeland defense of the nation or doing theater support in both Europe and the Pacific. Said another way, there's 29 percent left in the United States not fully engaged today.

In those different units, in a case against violent extremists, I've got very ready crews. They're going to win in the Middle East. Against a high-end adversary, they're not training the way they should. They're not doing all the muscle movement, all the skills

that they need to practice on a routine basis to be ready against any adversary anywhere.

Senator HIRONO. When you talk about a high-end adversary, you're talking about Russia or China?

General WILSON. Russia or China, for example.

Senator HIRONO. Again, General Wilson, the Air Force COS [Chief of Staff] has stated that 50,000 airmen have left the Air Force while missions have grown, so there's a math problem, and that the Air Force is too big for the resources available but far too small for what the Nation demands of it.

Can you explain the implications of reduced readiness and the impacts on morale and retention? I think one of you said it's getting them on the front end that's okay, but keeping them is a major problem.

Can you talk about the Air Force's plan to increase readiness in future years? Also, what steps are being taken by the Air Force to meet the requirements for more technically capable recruits for areas like space, cyber, ISR, and nuclear?

General WILSON. Senator, those are all fantastic questions. I'll maybe start with the last one.

We are in competition. We want the best talent that America has to offer, and the good news is we're getting great talent. It's going to continue to be a challenge as we go forward, as we grow our force, because we've got to be able to attract America's best and brightest. They've got to see what we do is different, and I think we can connect to the American public about the value of our mission. When they see what we're doing, they want to serve, they want to join our team.

To be part of that, to be part of a world-class team, we need to get them the right education, training, and equipment, and then make sure they're both personally and professionally fulfilled. That's what keeps them in the service. Across those areas we've got lots of work to do to make sure that they're not coming into the Air Force and working on old, outdated equipment, that they're working on state-of-the-art equipment. The training and education they get is world class. They remain committed, passionate, and proud about serving our nation and are personally and professionally fulfilled.

Senator HIRONO. For our other services, are you basically having retention problems also, and what are you doing to make sure that the troops stay in?

General WALTERS. Retention should never be taken for granted, Senator. It's something we look at every day. When it comes to pilots, I think probably the Air Force is the bellwether for that, and we're watching very closely what they're doing, and we're looking for the partnerships to try to keep more pilots in place.

The biggest thing we can do to retain service men and women is to give them the equipment they need and the training they need and the quality of service. The quality of life will come. Give them the things they need to do the job they came in for. If they sign up, let's get them the stuff they need.

Admiral MORAN. Senator, I agree with everything that's been said. I would just add that retention problems are always looking

in the rearview mirror. It's very difficult to project when it's going to come without some of the canaries in the coal mine.

On the pilot side, we certainly look to the Air Force to be the leading indicator of that. We're concerned, deeply concerned that they're having issues.

When it comes to recruiting, I often look to the Army because they recruit more young men and women into the Army than any of us do. If they're having troubles, then we should be looking next.

Those are the bellwethers and the canaries in the coal mine for us.

We currently are doing fine when it comes to recruiting. A lot of young men and women want to come join the service for their country. It's keeping them for the long haul, especially those we have invested a lot of money in for their technical training that we really have to pay attention to.

General WILSON. Senator, can I pile on just for a second, just to give you another example? If each of us were to lose—again, I'll use fighter pilots just for an example. If I say I've lost 10 fighter pilots, what I really said, what I should be saying, that's a \$100 million capital investment, because they're about \$10 million each to train, and it takes 11 years. When they get out at the 11-year point, that's the loss. I've got to make up that capital investment, plus time, and that experience. We're focused hard on how to retain quality pilots in the Air Force, and what they've all said, let them do their job with the right equipment.

Senator HIRONO. Did you want to add something, General?

General ALLYN. Thank you, Senator Hirono. I would echo the comments that have been made. I will tell you that we are assessing the finest talent that we have seen in our history. We're getting high-quality soldiers that are joining. We are watching very carefully our mid-grade non-commissioned officers and mid-grade captains and majors who have been on this relentless tempo. The reason why the end strength increase is so important is that a smaller force cannot continue to carry the same load without a retention impact. We need to grow the force. We need to sustain the quality that we have, and we will not have a retention problem as we move forward if we do that.

Senator HIRONO. It's pretty hard to enable our people to do the jobs that they signed up for if we continue to rely on short-term CRs and we do not get rid of sequester, because those all impact readiness and modernization, all of those connected areas.

Thank you very much, Mr. Chairman.

Senator INHOFE. Thank you, Senator Hirono.

Senator Perdue?

Senator PERDUE. Mr. Chairman, thank you for having this hearing. I just want to say for the record, I'm shocked. When I read the testimony—and I want to thank you guys and your teams for everything you're doing, but I want to comment on where we are. I mean, this is shocking to me, that the Federal Government has only a few things it's supposed to do. One of 6 reasons 13 colonies got together to start with was to defend and provide for the national defense. No leader would ever let that responsibility dwindle to this sort of capability. It's not the fault of these guys. God bless them. I think they're getting as much out of what we've given them

over the last 25 years than anybody in the world, but here's where we are.

This is not the first time we've been there. General Wilson, you mentioned the late 1970s. I mean, in the 1970s, post-Vietnam, we defunded the military. We recapped it in the 1980s. We defunded it again in the 1990s. We sort of recapped it in the 2000s. Behind 15 years at war, we burned it up, and a lot of that money went to operations, not equipment.

We hear across all these services, we've got 20 years of catch-up here, and I don't know how you do that. General Mattis 2 weeks ago actually said that the greatest threat to national security is our own Federal debt, and here's why. I mean, we can't fund what these guys need, and what we need for them to have. There's a moment in history here today—I just want to say it, though—that I heard both sides today say that we have something in agreement, and I want to document that today in the United States Senate. We both know that sequestration, CRs, and the BC caps are just devastating to what we're trying to do here, but it's much bigger than that, Mr. Chairman and leaders.

I just want to tell you how much I appreciate your brave face today, but I'm very concerned that in the last 8 years, and in the next 10 years based on the baseline budget today, the Federal Government is borrowing over 35 percent of what it spends as the Federal Government. That means that we're borrowing the other 35 percent, the 35 percent. The problem with that is that our discretionary spending is about 30 percent of our total spending. That means all of the tax money we get in pays for our mandatory. That means that every dollar we spend on your services, on the defense of the country, every dollar we spend on our veterans and our VA [Veteran's Administration], every dollar we spend on the domestic programs which have been holding our military spending hostage, is borrowed. We have to go to China to help fund what you're talking about doing today.

Mr. Chairman, I don't know how to say this any clearer. We are in the throws, I think, of the worst military crisis we've had in our history, short only of the 1800s when we had to fund our first five frigates and we didn't have any income to do it. I don't care how we do this, but we've got to get serious as a Congress and as an administration to figure out how to do this.

I just have a couple of questions. I read your testimony. It speaks for itself. General Allyn, I'd like for you to emphasize for the record some really telling—we had a question on the hollow force. I'd like to quantify that a little bit. You mention in here that your forces, you have about 31 BCTs [brigade combat teams]. Is that right?

General ALLYN. In the active force, 58 in the total force.

Senator PERDUE. Yes, sir. Of that 58, or of the 31, you have about 3 that could go to war tonight, that could fight tonight. Is that what you said?

General ALLYN. That's correct. They're fully manned, fully equipped, and trained for immediate deployment.

Senator PERDUE. That 3 compares to the 58. Is that correct?

General ALLYN. That's across the 58. They happen to be from the active force.

Senator PERDUE. Agreed.

General ALLYN. However you do the math, it's not good enough.
 Senator PERDUE. I'm trying to find out how severe this really is relative to putting it in perspective. It's amazing to me how Congress and past administrations have allowed this to happen.

Talk about consuming readiness. As we sort of build that back, there's a danger, and I've heard this before, and I've seen it in business. You can consume what you're adding back. By the time you get to the end of that adding back, you really haven't added much. I know you each have that going. Could you explain that to us more?

General ALLYN. Well, I think to my distinguished colleague from the Navy, he used the term 'supply and demand.' It's really a very simple math problem. If your commitments remain steady or increase, as the United States Army's have during this drawdown, and your force is smaller, you are doing as much or more with less. As a result, something gives. For us, we would never send a soldier or a force to do a mission that wasn't trained and ready and fully equipped with the best that we can provide.

What that means is the force that's back here is less ready than it needs to be, less well equipped, and for the United States Army we've had to implement many restrictions so that the forces going forward are fully manned.

Senator PERDUE. We see that. I've been on Foreign Relations now for just 2 years, but traveling around, meeting with your troops around the world—and by the way, the best American, and I mean the very best, is in uniform. It makes me proud to be sitting here, and we want to fight to help do what you're trying to do. They're getting what they need at the tip of the spear. It's everything, the mojo back here, is what you're saying is our problem.

General Walters, just to be specific about one example of what General Allyn is talking about, in Moron, Spain, you've got a great contingent of marines over there. Their mission, as I understand it, is to protect, on a front-line basis, the embassies in Africa. That's one of their missions, their primary mission.

General WALTERS. Yes, sir.

Senator PERDUE. We just had to bring half of our B-22 squadron back. Could you explain to us why we brought that back and—

General WALTERS. Because we couldn't sustain it, sir. We had to reduce the commitment to Moron and—

Senator PERDUE. What does that do to your mission capability?

General WALTERS. Well, it puts them in a little bit riskier position if they—we had 12 over there because we had to send 4 to South Sudan, a no-fail mission. Four had to take off. Doing that with 6 aircraft, 4 out of 6 on a 24/7 basis, is a little bit more risky.

Senator PERDUE. Yes, sir.

General WALTERS. Now, if we had the squadron, if we had the airplanes, if we had the readiness, then we would keep 12 over there. It's the same with our—we didn't only reduce that one. Our CENTCOM [U.S. Central Command] commitment in Al Jaber went from 12 to 6 aircraft.

Senator PERDUE. Basically cut that—

General WALTERS. We cut those commitments. The requirement was still there. We just couldn't sustain it, so we had to reduce the commitment to a sustainable level, and that happened to be six.

Senator PERDUE. General Wilson, you mentioned that your average pilot today, Active Duty, averages about 150 hours a year. Is that correct?

General WILSON. Yes, Senator, across the fighter fleet.

Senator PERDUE. Yes, sir. It would shock you, I know, but it certainly shocks me to realize, Mr. Chairman, that I'm flying four times—a sitting United States Senator, I put four times the number of airplane hours as our average Air Force pilot. That's shocking to me, and it's not your fault, but I recognize how severe that puts us.

If we're looking at your priorities—there's no way we can fund all this in the very short term—can you prioritize between your list of the B-21, KC-46, F-35? Talk about that just a little bit. The nuclear capability. You said nuclear was priority one, right?

General WILSON. We have to modernize our nuclear force. When you look at the nuclear force today, our Minuteman IIIs were built in the 1960s, Minuteman I in the 1960s, modernized to Minuteman IIIs in the early 1970s. We still have components on the Minuteman III from the Minuteman I. We have to modernize those.

Our cruise missiles were designed in the 1970s, built in the 1980s, to last 10 years. They're on their fifth service life extension for those missiles. They have to be modernized. We have to have missiles that can get to the target and do what's asked of it, and we have a plan to do that with what's called the LRSO [Long Range Standoff Cruise Missile].

The B-21 bomber. Again, we're flying all of our bombers. Our newest bomber is 25 years old, the B-2. That's the newest bomber. All of our bombers are old. The B-21 will be a huge improvement to our combat capability.

Nuclear first, KC-46 to follow—or, excuse me, F-35, KC-46, and then the B-21. Those are the programs going forward, the modernization programs.

Senator PERDUE. Thank you, Mr. Chairman.

Senator INHOFE. Thank you, Senator Perdue.

I think we also need to recognize—and this will surprise a lot of people. I want to distribute these out. This shows what has happened to our military in terms of priorities. In 1964, 52 percent of all revenues that came into the United States went into defending America. That figure is now 15 percent. It's a much more volatile world out there.

The only place we're going to come up with the resources is going to be to re-prioritize where our military is. I was a little bit critical of President Obama's position, that he didn't want to do anything with the military unless you do an equal amount. That's not what the Constitution tells us we're supposed to be doing.

I have three things to put in, without objection, into the record. [The information referred to follows:]

THE WHITE HOUSE
Office of the Press Secretary

For Immediate Release
January 27, 2017

NATIONAL SECURITY PRESIDENTIAL MEMORANDUM

MEMORANDUM FOR THE SECRETARY OF DEFENSE
THE DIRECTOR OF THE OFFICE OF MANAGEMENT
AND BUDGET

SUBJECT: Rebuilding the U.S. Armed Forces

By the authority vested in me as President by the Constitution and the laws of the United States, including my authority as Commander in Chief of the Armed Forces of the United States, I hereby direct the following:

Section 1. Policy. To pursue peace through strength, it shall be the policy of the United States to rebuild the U.S. Armed Forces.

Sec. 2. Readiness. (a) The Secretary of Defense (Secretary) shall conduct a 30-day Readiness Review. As part of this review, the Secretary shall:

- (i) assess readiness conditions, including training, equipment maintenance, munitions, modernization, and infrastructure; and
- (ii) submit to the President a report identifying actions that can be implemented within the current fiscal year and that are necessary to improve readiness conditions.

(b) Concurrently with the Readiness Review, the Secretary, together with the Director of the Office of Management and Budget (OMB), shall develop a Fiscal Year (FY) 2017 budget amendment for military readiness, including any proposed reallocations.

(c) The Secretary shall work with the Director of OMB to develop levels for the Department of Defense's FY 2018 budget request that are necessary to improve readiness conditions and address risks to national security.

(d) Within 60 days of the date of this order, the Secretary shall submit to the President a plan of action to achieve the levels of readiness identified in the Secretary's Readiness Review before FY 2019. That plan of action shall address areas for improvement, including insufficient maintenance, delays in acquiring parts, access to training ranges, combatant command operational demands, funding needed for consumables (e.g., fuel, ammunition), manpower shortfalls, depot maintenance capacity, and time needed to plan, coordinate, and execute readiness and training activities.

Sec. 3. Rebuilding the U.S. Armed Forces. (a) Upon transmission of a new National Security Strategy to Congress, the Secretary shall produce a National Defense Strategy (NDS). The goal of the NDS shall be to give the President and the Secretary maximum strategic flexibility and to determine the force structure necessary to meet requirements.

(b) The Secretary shall initiate a new Nuclear Posture Review to ensure that the United States nuclear deterrent is modern, robust, flexible, resilient, ready, and appropriately tailored to deter 21st-century threats and reassure our allies.

(c) The Secretary shall initiate a new Ballistic Missile Defense Review to identify ways of strengthening missile-defense capabilities, rebalancing homeland and theater defense priorities, and highlighting priority funding areas.

Sec. 4. General Provisions. (a) Nothing in this memorandum shall be construed to impair or otherwise affect:

- (i) the authority granted by law to an executive department or agency, or the head thereof; or
- (ii) the functions of the Director of OMB relating to budgetary, administrative, or legislative proposals.

(b) This memorandum shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) All actions taken pursuant to this memorandum shall be consistent with requirements and authorities to protect intelligence and law enforcement sources and methods. Nothing in this order shall be interpreted to supersede measures established under authority of law to protect the security and integrity of specific activities and associations that are in direct support of intelligence and law enforcement operations.

(d) This memorandum is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

(e) The Secretary is hereby authorized and directed to publish this memorandum in the *Federal Register*.

DONALD J. TRUMP

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SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

MEMORANDUM FOR: SEE DISTRIBUTION

JAN 31 2017

SUBJECT: Implementation Guidance for Budget Directives in the National Security
Presidential Memorandum on Rebuilding the U.S. Armed Forces

In furtherance of the National Security Presidential Memorandum on Rebuilding the U.S. Armed Forces, issued on January 27, 2017, this memorandum provides my initial guidance for strengthening the U.S. Armed Forces through a Fiscal Year (FY) 2017 budget amendment, the FY 2018 President's Budget request, and the FY 2019-2023 Defense Program.

The President and I are committed to strengthening the U.S. Armed Forces, and the Department will approach the task in a campaign of three phases:

1. Improve warfighting readiness
2. Achieve program balance by addressing pressing shortfalls
3. Build a larger, more capable, and more lethal joint force

The ultimate objective is to build a larger, more capable, and more lethal joint force, driven by a new National Defense Strategy. Phases one and two are intermediate objectives, but we should be working towards the ultimate phase three goal throughout the process.

Phase 1: Improve Warfighting Readiness – the FY 2017 Budget Amendment

To address immediate and serious readiness challenges, we will prepare an FY 2017 budget amendment request. The amendment will address urgent warfighting readiness shortfalls across the joint force, and new requirements driven by acceleration of the campaign against ISIS. The amendment may increase force structure in critical areas where doing so would have an immediate readiness impact. The amendment will also include offsets from lower priority programs where appropriate, but will be a net increase over the FY 2017 topline requested by the previous Administration.

The Deputy Secretary will manage the review process and make a recommendation to me on the budget amendment request. We will deliver the Department's budget amendment request to the Office of Management and Budget (OMB) no later than March 1, 2017.



OSDC01007-17/CMD001480-17

Phase 2: Achieve Program Balance – the FY 2018 President’s Budget Request

We will conduct a comprehensive but accelerated FY 2018 budget review to refine and improve the Department’s FY 2018 President’s Budget (PB) request. The FY 2018 PB request will focus on balancing the program, addressing pressing programmatic shortfalls, while continuing to rebuild readiness. Examples include, but are not limited to, buying more critical munitions, funding facilities sustainment at a higher rate, building programs for promising advanced capability demonstrations, investing in critical enablers, and growing force structure at the maximum responsible rate.

The Deputy Secretary will lead this review on my behalf, and will provide a recommendation for my review and decision. He will provide updated fiscal guidance to components when it becomes available from OMB. We will deliver the Department’s FY 2018 PB request to OMB no later than May 1, 2017, unless otherwise directed by OMB.

Phase 3: Build Capacity and Improve Lethality – the National Defense Strategy and FY 2019-2023 Defense Program

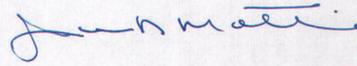
As we finalize these immediate investment plans, we will begin to produce the 2018 National Defense Strategy (NDS), which will be closely coordinated with and complementary to the new National Security Strategy. The NDS will include a new force sizing construct, which will inform our targets for force structure growth. It will also determine an approach to enhancing the lethality of the joint force against high-end competitors and the effectiveness of our military against a broad spectrum of potential threats. The FY 2019-2023 Defense Program will follow, containing ramps that grow the force quickly but responsibly, and critical investments in advanced capabilities.

While strengthening the military, the FY 2019-2023 Defense Program must also improve how the Department does business. We owe it to every U.S. citizen to build a military that is as effective and efficient as possible. To this end, the FY 2019-2023 Defense Program will also contain an ambitious reform agenda, which will include horizontal integration across DoD components to improve efficiency and take advantage of economies of scale.

Keeping Faith with Service Members and Families

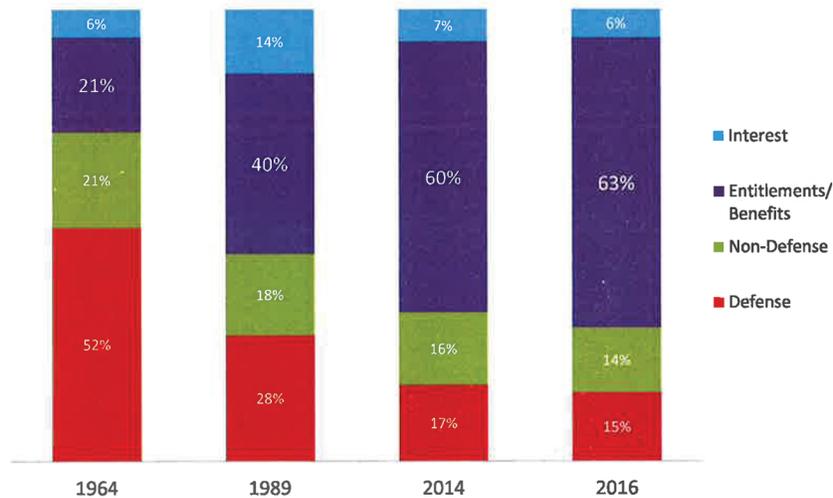
Through all of these budget and program actions and strategy reviews, we cannot lose sight of the imperative to keep faith with our Service members and their families. We will ensure that we are caring for those charged with defending the nation and its interests.

I appreciate the countless hours of good work that have already gone into building the FY 2017 and 2018 budgets, and I look forward to working with you to see these budgets adapted to incorporate the National Security Presidential Memorandum on Rebuilding the U.S. Armed Forces.

A handwritten signature in blue ink, appearing to read "John Mattis".

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Federal Spending by Category



*May not add to 100% due to rounding
 1962-2013 Office of Management and Budget – Historical Tables
 Table 8.2-Outlays by Budget Enforcement Act Category in Constant (FY 2005) Dollars: 1962-2018
<http://www.whitehouse.gov/omb/budget/historicals>

2012-2018: Fiscal Year 2014, Mid-Session Review, Budget of the U.S. Government
<http://www.whitehouse.gov/sites/default/files/omb/budget/fy2014/assets/14msr.pdf>

2014: Source FY15 OMB Summary Table 5-5

Senator INHOFE. Senator Kaine?

Senator KAINE. Mr. Chairman, I could make just a response to your comment about the doing it equally for defense and non-defense, because I think, just to explain how we look at it from our side of the aisle—

Senator INHOFE. Sure.

Senator KAINE.—because maybe this will help us figure a way forward.

There was no necessary linkage between spending on defense and non-defense prior to the sequestration and the budget caps. You'd make your argument for non-defense; you'd make your argument for defense. You'd hopefully convince your colleagues.

When the caps were voted in place, the sequester in August of 2011, it was, “let’s try to find a good budget deal, but if we don’t, we will impose budget caps equally on defense and non-defense.” The equality was as a result of the budget caps going into place in the sequester, and so we have always insisted on our side of the aisle that as long as the caps are in place, there should be equal relief.

If sequester was repealed like that, we would be back in the previous state where there wouldn’t be a 50–50 argument. Each side would make its case on the priorities that it wanted and may or may not succeed, but we insist on the 50–50, and another president did as well, because we are in a BCA [Budget Control Act] cap environment, and as long as the sequester is the law and we’re not repealing the whole thing, we insist on 50–50.

Now that the GOP controls both houses, it would seem like a good time to go ahead and get rid of the caps, and then we'll just go back to making our case about the priorities. Living under the caps under this scenario, I think we all agree it really doesn't make any sense, and there's no 50-50 argument once the sequester goes away.

Senator INHOFE. Thank you, Senator Kaine.

Yes, Senator Shaheen?

Senator SHAHEEN. I know that we have a time deadline, but I just thought it might be remiss of us to close this hearing without asking our panel to testify on the comments yesterday before the House panel on the BRAC [base realignment and closure] process and whether they support that, because there was testimony yesterday that some of you would like to see another round of base closing, and I just wanted to see if we could get insight into that.

Senator INHOFE. Let's do this, and I would afford the same opportunity for the other senators here. Quite frankly, I didn't bring that up, and I didn't bring that up because I disagree with these guys.

[Laughter.]

Senator INHOFE. Here's the problem, and tell me if you disagree with this. I've been through every BRAC round, five of them now. Without exception, every BRAC round for the first 3 years costs money. If there's ever a time in the history of our military that we can't afford to dilute those dollars that we need to try to resolve the problems that have been talked about today, it's now.

The second reason is this. We've allowed in this starvation period our function to go down. I've always been hesitant, and I felt the same way back in the 1990s after we said the Cold War is over and we no longer need this site, we lived through that. The problem with that is, if you allow the mission, the infrastructure to go down and the resources to go down to match what is already artificially low, then once you rebuild you don't know for sure what you're going to need.

Now, you didn't ask me; you asked them. If you would like to make any comments about your position on a very significant issue, it would be BRAC.

General ALLYN. I'll step into the breach first, Chairman, recognizing that I'm going to say something that you disagree with, but I respect your opinion. I also recognize that I've been up here now for the third year pleading for additional funding, pleading for the elimination of sequestration, and pleading for the stoppage of continuing resolutions.

Given that those have not gone away, we are forced to look internally on where else can we save, and a BRAC is an area we know we can save. Yes, we do have to put money up front, but right now we are saving \$1 billion per year from the 2005 BRAC, and \$2 billion per year from all the BRACs in prior years. That's real money that we need if we don't get rid of sequestration and we don't get rid of continuing resolutions.

That's the environment that we're operating in, and to us a billion dollars would make a huge difference. It costs us \$30 million to run an installation, whether there's a soldier on it or not. This

is real money when you have 154 installations to run around the world.

Senator INHOFE. I would say if we can afford to reach the point where that yield is achieved and realized, I would agree with you.

Any other comments on the BRAC?

Admiral MORAN. Senator, I would just tell you I learned a long time ago that waterfront property is something you should never give away.

[Laughter.]

General ALLYN. The Army doesn't have much of that.

Admiral MORAN. I know, and that's why I respectfully disagree with you.

[Laughter.]

Admiral MORAN. We feel we're in pretty good shape in the Navy. The 6 percent or so of overhead that we're carrying really is internal to the bases. If we could do a micro-BRAC inside our own bases just to demolish buildings we'd like to demolish and not have to go through the bureaucracy of that, that would be far more helpful than going through another round of BRAC to the Navy.

Senator INHOFE. Appreciate it.

Any other comments?

General WALTERS. Sir, we're small either coast. We're fine right where we are.

Senator INHOFE. You're still using retreats, too.

[Laughter.]

Senator INHOFE. Senator Perdue?

Senator PERDUE. I apologize, but I cannot resist this moment. I came into the Senate as a debt hawk and also a defense hawk. We've lost the luxury of choosing sides on this. We have to be both. I'm very concerned that in the last 42 years, since the 1974 Budget Act, we talk about CRs and we talk about sequestration and all this, but we've used 175 CRs since 1974. That's not going to stop.

The budget process is broken. It's one of the problems that—

Senator INHOFE. Yes, it is.

Senator PERDUE. It's not a partisan comment. It's one of the few things Senator Kaine and I—we agree that this is something, if we could get to a politically neutral platform, you could eliminate CRs, you could eliminate debt ceiling conversations. This is something that we can do. I think we have to use the military as the platform and the reason why it is absolutely necessary we do it right now.

I would implore this subcommittee to start looking at that as a way to put pressure back on the people who do have an opportunity to change that process. One-hundred-seventy-five continuing resolutions under all kinds of presidents over the last 42 years. This has nothing to do with partisan politics. It's something that we've got to fix. We will never solve this problem until we solve that problem.

Senator INHOFE. We might start by passing appropriations bills.

Senator SHAHEEN. Mr. Chairman, I just want to be clear for the record that I agree with your position, not with General Allyn's, much as I understand it.

Senator INHOFE. Oh. Thank you.

General ALLYN. I wasn't coming after Portsmouth Naval Shipyard, ma'am. My stepfather worked there for 30 years, okay? I got to go to school because of it.

Senator PERDUE. In 42 years, we've averaged two-and-a-half appropriations bills passed per year. That's the problem.

Senator INHOFE. Yes. It's disgraceful.

General Wilson, last shot.

General WILSON. Senator, I think we carry about 25 percent extra capacity on our bases. I think there's an opportunity to do some smart investment going forward. Right now, we're carrying a backlog of stuff that we have to pay for in this budget environment. I think we need to look at opportunities to save.

Senator INHOFE. Okay, appreciate very much the excellent testimony and the attendance. Thank you so much for being here.

We're adjourned.

[Whereupon, at 4:08 p.m., the subcommittee was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JAMES INHOFE

FORCE STRUCTURE

1. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, based on each of your services analysis, how big does each service need to be in order to carry out its current missions and potential contingencies in the future?

General ALLYN. As CSA General Mark Milley testified in 2016, the Army would need to grow to about 1.2 million in order to ensure we have the capacity necessary to carry out current operations and be ready to execute required contingency plans at moderate risk. Assuming the Army is authorized and funded for end strength increases, the Army will need a proportional increase in funding for training and equipping. Without this funding we cannot reduce risk or increase readiness.

Admiral MORAN. Today's strategic environment is increasingly demanding and the evidence is undeniable that we are engaged in a sea control competition with major powers that we have not faced in over 20 years. Achieving national tasking and goals in this security environment requires a larger Navy, as validated by the 2016 Force Structure Assessment (FSA) which set a requirement for 355 ships. This larger force will also require additional manpower, readiness, aircraft and weapons. While the FSA sets a target to begin building toward the future force, Navy continues to investigate advanced technologies and innovative operating concepts to allow us to be more competitive, efficient and effective in the future. When these evolutionary and revolutionary technologies and capabilities deliver, Navy will revisit the FSA to ensure we deliver the Navy the nation needs.

General WALTERS. The Marine Corps recently completed a year-long, comprehensive review of our force to determine the capabilities necessary to persist in the future operating environment and fight and win against a peer adversary. That review revealed that the Marine Corps needs to be at an end strength of at least 194,000 marines to possess these capabilities. However, due to current steady state demands, the Marine Corps would require end strength above 194,000 to provide the deployment-to-dwell ratio that would afford adequate training time between deployments to maintain a ready, full-spectrum force. Importantly, an end strength increase without an associated increase in modernization, training, and sustainment funding will not set the conditions for success against a peer adversary.

The recent authorized end strength increase of 3,000 marines to a force of 185,000 is a move in the right direction. However, the most recently projected POM-18 controls limit the ability to modernize that force in a timely manner. We continue to do analysis to determine those risks which may be inherent with this authorized end strength and associated funding.

General WILSON. To improve readiness and attain manning levels matching our mission requirements, we must increase our Active Duty, Guard and Reserve end strength. Growing to at least 350,000 Active Duty and commensurate growth in the Guard, Reserve and stabilizing civilian strength would allow us to address shortfalls in a number of key areas, including critical career fields such as aircraft maintenance, pilots, NC3, intelligence, cyber, space, and battlefield airmen.

2. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, will this force structure be large enough to fight two Major Theater Conflicts near-simultaneously?

General ALLYN. This 1.2 million force structure is designed around the existing defense strategy and classified guidance to ensure the Army is capable of defeating one adversary while denying another. Even at a total force size of 1.2 million, the Army will face moderate to significant levels of risk when faced with defeating one adversary while denying another simultaneously.

Admiral MORAN. Defense planning guidance directed that the capacity and capability of the Joint Force must be sufficient to defeat one adversary while denying the objectives of a second adversary. The Navy's 2016 Force Structure Assessment identified 355 ships as the force size required to achieve national tasking and goals based on Navy's current platforms.

General WALTERS. There are a number of variables that must be taken into account to answer this question. Force structure demands (force flow timelines and overall peak requirements) for two near-simultaneous Major Theater Conflicts vary widely dependent on the specific combinations considered, the level of acceptable risk articulated by the National Command Authority, and if OPLANS or Support for Strategic Analysis (SSA) scenarios are utilized as the baseline.

General WILSON. While growing to 350,000 will make the force we have healthier, the Air Force still faces capacity and capability shortfalls to be able to meet the Defense Planning Guidance (Defeat plus Deny and Homeland Defense).

3. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, what are each of the services plans for increasing end strength over time? How fast can each service grow?

General ALLYN. The fiscal year 2017 NDAA passed by the Congress and signed by the President directed the Army to increase end strength to 1,018K (476K-AC/343K-ARNG/199K-USAR) by the end of 2017. The Army plans to use this increase in end strength to fully man units and grow certain select areas such as cyber. The Secretary of Defense has directed a strategic review that will determine the required end strength of each Service. Our current analysis states that given availability of funds and authorization, the Army could sustain a responsible end strength increase of 10,000 soldiers per year while sustaining the high quality and readiness of our force.

Admiral MORAN. Navy combat power is predominantly delivered through platforms—ships and aircraft. To effectively deliver this combat capability, these platforms must be properly manned with appropriately trained people. The Navy end strength profile is largely dependent on the composition and manpower needs of the platforms that force is supporting. Navy is developing specific accession and workforce management plans to support anticipated force structure scenarios, within established fiscal and infrastructure constraints. These plans consider: general population propensity for service, recruiting and training capacity, Sailor retention behavior, and the skills, training and experience required, based on the demand signal of the anticipated force structure. The speed at which manpower growth occurs will vary depending on the rate at which new platforms are procured and constructed, the manning needs of specific platforms as they come online, required skill-sets of Sailors assigned to those platforms, and the seniority/experience mix needed to operate at peak readiness, efficiency and capability. Ship construction rates will be the limiting factor to the rate of increase in end strength. The Navy's capacity to recruit and train additional personnel may require adjustments, but should not limit the pace of required manpower adjustments.

General WALTERS. At current funding levels, the Marine Corps cannot grow beyond 185,000 marines without creating a hollow force. However, with additional funding for modernization, training and sustainment, the Marine Corps could grow responsibly at a rate of up to 3,000 per year. The current limiting factors for growth are the throughput capacity of some of our highly technical schools, joint school capacities, and the need to recruit and retain high quality people for the modern force.

General WILSON. The Air Force has articulated a need for 350,000 Active Duty airmen based upon the current Air Force mission set and force structure. In general, if approved, while we could grow faster, we believe that an increase of approximately 4,000 to 5,000 airmen per year (reaching 350,000 by the fiscal year 2023/2024 timeframe) would provide for a sustainable growth path, would meet the long-term needs of the force by providing stability and experience, and would allow us to properly balance our Air Force specialty codes.

4. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, will each of the services be able to recruit and retain qualified personnel to fill the ranks of a larger force?

General ALLYN. The Army expects to recruit and retain enough quality soldiers to achieve the fiscal year 2017 NDAA authorized end strength increases to 1.018 million. Army recruiting and retention programs will continue to focus on maintaining quality, in particular retaining only high-caliber soldiers and by accessing almost all high school diploma graduates and bringing in no applicants with histories of adult major misconduct. The Army has achieved year to date fiscal year 2017 accession missions and projects to achieve the original fiscal year 2017 accession missions in all components while maintaining the current high quality of the All-Volunteer Force. Sustaining a larger, high quality force will require increased recruiting manpower and incentives for recruiting and retention.

Admiral MORAN. Depending on the size and pace of the expansion of the force, I am relatively confident that Navy is postured to accommodate potential growth. We would expect to experience challenges in meeting an increased demand signal for high quality enlisted recruits in the Nuclear Field, Information Warfare, Special Warfare, and Advanced Electronics ratings, and among medical, dental and chaplain corps officers. An increasingly competitive recruiting market and quality standards may require application of additional resources. As we plan for future growth we must also remain mindful of training infrastructure capacity—in terms of military construction, numbers of instructors, and available course offerings—which may also need to grow at a rate commensurate with planned force structure growth. Similarly, we continue to experience retention challenges and inventory shortfalls among critically-manned communities. Continued judicious application of targeted special and incentive pays will be critical in our efforts to continue meeting aggregate enlisted retention goals in the foreseeable future. We are closely monitoring economic indicators that could impact our ability to meet recruiting and retention goals as we grow the force. Current indicators suggest increasing demand from the civilian sector for our top talent over the next few years. As we track retention behavior, we remain laser-focused on retaining Sailors in the right mix of ratings and pay grades to position us to meet future mission requirements, while monitoring the health of the force.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. The growth is achievable based upon our recruiting, accession, training, and retention projections, but would require additional fiscal resources and personnel within our training enterprise to grow and sustain a larger force. As part of any budget submission, we would program for the requisite resources and personnel to support this effort. We will need Congressional support for the increased resource requests associated with recruiting, training, and retaining airmen. This would include increases in our reenlistment and retention bonuses as well as other special pays. Retention is critical to our growth plan and we must preserve and maximize the experience we have in the force as we access increasing numbers of young airmen. Additionally, to support high retention we must continue to inspire our airmen and ensure we maintain a high Quality of Life for our airmen and their families.

READINESS GOALS

5. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, what actions or resources are being applied to near-term readiness recovery efforts?

General ALLYN. Actions being taken to improve near-term readiness include using increased end strength to offset personnel shortages and targeted increases in training dollars, flying hours, ground OPTEMPO hours to support higher readiness levels at home station and the Combat Training Centers (CTCs). A substantial portion of the Regular Army end strength growth to 476,000 will be used to increase manning levels in existing units. This increase will help offset personnel shortfalls, non-availability, and non-deployability that currently have units training and deploying at 75 to 85 percent of their authorized strength. CTCs facilitate commanders' readiness assessment through live-fire, force-on-force, and computer-simulated exercises integrating all aspects of lethal and nonlethal effects tailored to the operational environment from platoon- to corps-level. In fiscal year 2018, we will execute 20 maneuver CTC rotations for our BCTs including an increase to Army National Guard BCTs from two to four per year. Combat Training Centers (CTCs) play a critical role in building decisive action readiness because home stations cannot fully replicate the realism and lethality of operations against a near-peer nation. Combat Training

Centers are now routinely challenging units with hybrid threats and have increased exposure to electronic warfare, enemy unmanned aerial systems, cyber-attacks, indirect fire, and increased enemy use of precision guided munitions. Adequate preparation at home station is essential for a unit to benefit from CTC training. The Army continues to invest in training readiness at home station by sustaining training support services and implementing more Emergency Deployment Readiness Exercises. Select Reserve Component forces designated as early deployers for contingency operations will receive increased manpower, equipping, and training resource priority.

Admiral MORAN. Over the past several years, and in a very challenging budgetary environment, we have had to make tough choices between current readiness and future readiness, and have experienced readiness degradation caused by underfunding of our operating and maintenance accounts. To reverse this course in the near term, we will be submitting an addendum to the President's Budget 2017 budget request that addresses some of our most immediate and serious readiness shortfalls. This request for resources will add funds to the Ship Depot Maintenance, Flying Hours, Aviation Depot Maintenance, Aviation Spares, and Ship Operations accounts. These critical investments are a down payment on a recovery plan as we dig out from years of underfunding these programs and contending with funding uncertainty. If approved by Congress, we are confident that we will be able to begin to turn the corner on some of our most critical readiness challenges. Moving forward, funding stability at these elevated levels will be key to maintaining required fleet readiness.

General WALTERS. Rebuilding the Marine Corps requires both near term actions implemented in fiscal years 2017 (FY17) and 2018 (FY18) and longer term efforts across the Future Years Defense Plan (FYDP). These changes can be viewed through the lens of manpower, modernization and readiness. It requires growth in service funding with a commensurate increase in Navy funding that supports Marine Aviation and amphibious ship and surface connectors. The Marine Corps for the 21st Century requires an end strength increase and seeks funding in fiscal year 2017 for the NDAA authorized endstrength of 185,000 marines in fiscal year 2017.

Due to the near-term emphasis on improving the readiness of Marine Corps aviation and ground combat equipment to meet warfighting requirements, Service actions seek to sustain—and, where possible, accelerate—the ongoing transition to new platforms while also increasing depot and unit maintenance capacity. Each of these efforts is critical to achieving established goals for ready basic aircraft and ground combat equipment that support training and operational requirements.

Readiness funding remains the linchpin of our ability to meet operational demands and provide for a “ready bench” prepared to rapidly respond to major crises. Addressing current readiness shortfalls requires additional operation and maintenance funding to enable exercises and training. Our bases, stations and installations are the platforms where we train and sustain our marines. They require increased sustainment, restoration and modernization funding. Support by the Congress for these initiatives facilitates the recovery of immediate shortfalls in manpower, modernization and readiness.

General WILSON. The Air Force's Fiscal Year 2017 Amended Budget Submission (ABS) request totals \$8.5 billion . . . builds on our readiness recovery, fills gaps, and improves lethality. It funds the #1 readiness priority of growing Active duty endstrength from 317,000 to 321,000, as well as essential support functions, and Military Construction requirements for future growth to fill critical capability gaps. For example, it addresses significant shortfalls in pilot production. It funds F-16 Flight Training Unit bed-down at Holloman Air Force Base, New Mexico, flight training support and maintenance training contracts, adversary training, and administrative support functions at fighter squadrons. The ABS arrests the decline of full spectrum readiness, continues key modernization efforts (F-35, KC-46, B-21), and meets a combination of forward presence and deployed commitments

6. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, are there particular service areas that are more at risk than others, in terms of their readiness recovery efforts?

General ALLYN. The Army meets current combatant command (COCOM) demand for forces, but we cannot meet COCOM contingency requirements with ready forces in all warfighting capabilities. In support of current operations, the Army continues to source roughly 50 percent of base combatant command demand (pre-planned) and 70 percent of emergent demand for the Joint Force. To sustain this demand, the Army is forced to accept risk in end strength, capacity, readiness, and modernization. Armored and Stryker Brigade Combat Teams (BCTs), Patriot battalions, and Terminal High-Altitude Area Defense (THAAD) units are experiencing the most stress, as combatant commanders increase demand to assure partners, provide support to Counter Terrorism operations, and set the theater. The cost of this high

operational tempo is that units cannot build the core Decisive Action readiness required for future contingency demands.

Admiral MORAN. Because of the readiness debt accrued from years of high operational demand, reduced budgets, and persistent uncertainty, the Navy's overall readiness recovery path for both afloat units and shore infrastructure is now more fragile. Disruptions, deviations and delays to readiness funding levels and maintenance schedules can undermine future recovery progress. Although proper funding for all readiness accounts is vital, ship and aviation depot maintenance along with aviation spare parts remain our most critical elements in the recovery of afloat readiness. fiscal year 2018 planned maintenance for our ships and aircraft is at an all-time high level, therefore, any deferral or cancellation of fiscal year 2017 maintenance would further exacerbate fiscal year 2018 planned efforts.

General WALTERS. Aviation readiness, amphibious ship availability, and ground combat equipment readiness are three areas that present a greater element of risk to current readiness. The most acute readiness concerns are found in our aviation units. A large percentage of our aviation units lack the minimum number of ready basic aircraft (RBA) for training and we are significantly short ready aircraft for wartime requirements." e Marine Corps has implemented extensive plans to recover readiness across every type/model/series of aircraft in the current inventory, while recapitalizing new aircraft to ensure future readiness. The key to reducing risk in aviation is recovering readiness by transitioning to new aircraft as quickly as possible. The Marine Corps is only a third of the way through its transition from legacy platforms. Delays in funding and fiscal constraints undermine recovery efforts and increase the institutional challenge of balancing current readiness with modernization.

The limited inventory of operationally available amphibious warships results in significant operational risk for Marine Corps forces—and strategic risk for the nation—in the event of a major combat operation requiring forcible entry operations. The limited availability is the product of fiscally-constrained ship inventories, ship maintenance challenges, and combatant commander demand. The result has been restricted opportunities for Marine Corps units at every level to properly train for amphibious operations outside of dedicated Marine Expeditionary Unit cycles. The Marine Corps fully supports the Navy's 2016 Force Structure Assessment, which articulates the requirement for a 355 ship Navy (including 38 amphibious ships) and recommends accelerated procurement to support this objective. Maintaining and modernizing our current fleet is just as important as building new ships. Funding maintenance and modernization enables the ships to reach their 40 year estimated service life, increases operational availability and readiness, and ensures warfighting relevance in the future operating environment.

We also continue to closely monitor ground combat equipment readiness. Older platforms that were utilized at an accelerated rate due to operational deployments in Iraq and Afghanistan now require increased maintenance. These increased costs are just being accurately realized and captured, but the aviation challenges associated with aging platforms outlined above are being replicated in the ground combat equipment portfolio.

General WILSON. Twenty-six years of constant demand has eroded Air Force readiness, especially for our low density, high demand core functions, like Personnel Recovery (PR). Today, our PR units are operating at an unsustainable surge operations tempo driven by high deploy-to-dwell between 1:1 and 1:2. As a result, the opportunity to train across all mission areas is limited at home station. The Air Force is focusing investment in training enterprise modernization and maximizing training opportunities with available home station equipment to address readiness shortfalls in this mission area. Additionally, the Air Force is focused on growing the force to address other high demand critical skills: maintenance, fighter pilot, intelligence, and battlefield airmen.

7. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, how has DOD leadership helped guide service efforts and what, if anything, else could be done at the department level to aid service readiness rebuilding efforts?

General ALLYN. The Department of Defense manages global force requirements, including missions assigned to Army forces. Continued deployments are having both a positive and negative effect on building Army readiness. Rotations of Armored and Stryker Brigade Combat Teams to Europe and Korea are building readiness. These rotational units are conducting training aligned with their decisive action mission and are building proficiency across the whole unit. The Army makes more progress towards rebuilding unit readiness when assigned missions require complete units, rather than ad hoc formations. When combatant commands request ad hoc forma-

tions, unit readiness drops as units are disaggregated or assigned to perform missions that do not require the unit's core design capabilities. Units deployed in support of non-decisive action operations are not increasing readiness. These units experience degraded readiness for contingencies against peer competitors when conducting missions not requiring decisive action proficiency. DOD leadership is helping Army readiness through guidance that emphasizes deployment of whole units and reducing artificial prescriptive policy limitations (force manning levels) that prevent unit-based mission assignments.

Admiral MORAN. DOD leadership has been instrumental in its support of regulating the number and length of deployments Navy has been required to provide in support of our combatant commanders. This has helped preserve needed maintenance time and has added the required schedule predictability that is essential in planning and executing ship and aviation maintenance. DOD leadership has also been instrumental in prioritizing readiness recovery and advocating for additional appropriations in fiscal year 2017 to support readiness. Though DOD's budget has been severely constrained by limited toplines under the Budget Control Act and Bipartisan Budget Acts, fully funding the readiness accounts is essential to current and future readiness recovery efforts.

General WALTERS. There are two on-going DOD efforts to guide Service readiness recovery efforts. The DOD Enterprise-level Readiness Framework was established to develop readiness models to track enter-prise readiness recovery, using common assumptions, annual milestones, and demand signal derived from the Guidance for Employment of the Force or the Defense Planning Guidance. The second effort is based on the Presidential Memorandum on Rebuilding the U.S. Armed Forces, which directed the Secretary of Defense to:

- Conduct a 30 day readiness review and submit actions that can be implemented within this fiscal year to improve readiness,
- Submit a plan of action within 60 days that addresses areas for improvement that include readiness,
- Build a larger, more capable, and more lethal joint force.

The results of these ongoing DOD efforts are expected to provide the Services with sufficient guidance for readiness recovery that acknowledges the unique contributions that each Service provides to the Joint Force.

General WILSON. The #1 Air Force readiness priority is people. To ensure we remain ready to defeat terrorists as well as sophisticated, well-equipped militaries, we must continue to grow the force. We need Congress' support to grow from 321,000 in fiscal year 2017 and to 350,000 in the 2023/24 timeframe. Growth will be appropriately evaluated across all components as well as our officer, enlisted, and civilian workforces. Furthermore, we are targeting growth in critical career fields to help improve readiness. We are stabilizing and bolstering our remotely piloted aircraft community while continuing to meet combatant commander requirements. We are increasing pilot training capacity and adjusting our incentive pay structure to help address our growing pilot shortage.

8. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, how are DOD and the services tracking progress in recovering readiness?

General ALLYN. The Army measures readiness at the strategic, operational, and tactical level against the ability of units to complete their core-designated missions to meet the requirements of the National Military Strategy (NMS). At each level there are standard metrics that are assessed monthly or quarterly to measure trends in readiness recovery and enable the Army Senior leadership to assess and where possible mitigate risk over time. Based on current assessments and trends, and assuming sustained, predictable funding and elimination of BCA impacts, the Army is making progress towards attaining our readiness goal of having the Total Force ready to meet NMS requirements by fiscal year 2021 to fiscal year 2023.

Admiral MORAN. Navy closely tracks the status of issues impacting readiness through a series of Shore, Aviation and Ship enterprises. Senior leadership within each of those communities routinely meet to discuss mitigation plans for any readiness issues and to track progress being made on improving overall health of the force. The Navy's four-star led Fleet Commanders Readiness Council (FCRC) convenes monthly to review recovery efforts and to provide guidance on any issues impacting afloat and shore readiness. Issues identified during FCRCs are often provided to the Joint Staff for situational awareness and also support OSD Readiness Deputy's Management Action Groups.

General WALTERS. To manage and track the progress of readiness recovery, the Marine Corps uses an integrated process that brings key elements of the Service

Headquarters and the Operating Forces together in the Institutional Readiness Working Group (IRWG). The IRWG meets routinely at multiple echelons from action officer to General Officer to identify obstacles to readiness recovery and to propose solutions to those impediments. On a quarterly basis, the IRWG prepares and presents a brief to the Service leadership, including the Commandant of the Marine Corps (CMC), during the Quarterly Readiness Board (QRB). The QRB reviews critical actions and the progress toward readiness recovery. The outputs of the IRWG and the QRB support OSD and Joint Staff tracking of readiness. The Office of the Secretary of Defense uses the Readiness Management Group and the Deputy's Management Action Group (DMAG), Strategic Portfolio Reviews, and Program Budget Reviews. The Joint Staff's Chairman's Readiness System (CRS) operates on a quarterly basis, the principal outputs of which are: the Joint Force Readiness Review, Operational Plans Assessments, the annual Readiness Deficiency Assessment, and an input to the Quarterly Readiness Report to the Congress. The results of the CRS are reported by the Office of the Secretary of Defense in the Quarterly Readiness Report to the Congress. In addition to participation in these events, the Marine Corps also conveys its readiness to Congress through briefs and hearings.

General WILSON. The Air Force's readiness recovery strategy focuses on disciplined, synchronized investment in readiness accounts in sequential order. The first priority is our longest-lead process, Active Duty end strength—up to 321,000 by the end of 2017—and eventually 350,000 over the next five to seven years. To that end, we must ensure the Office of the Secretary of Defense supports funding 321,500 end-strength in fiscal year 2017. Next, investment in the training and sustainment enterprises, both of which require three to five years of lead time due to industrial and human processes. Finally, as global rotational demands permit, we will be ready to increase flying hour funding to facilitate more robust home-station training activities. In short, each readiness 'lever' must be engaged at the proper time and in coordination with the other levers.

9. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, what interim benchmarks and timelines have been established to ensure progress stays on track?

General ALLYN. Last December, the Army published 2018 readiness objectives for all Army components for roughly half of our operating forces. The Army will publish 2019 readiness objectives for all operating forces this spring, and analysis is already supporting 2020 readiness objectives. The Army refined its force generation processes to manage Army force readiness around expectations of Sustainable Readiness. The Army will optimize the force readiness posture with readiness objectives meeting combatant commanders' requirements, while simultaneously mitigating our risk of supporting contingency requirements specified in the Defense Planning Guidance (DPG). The Army standardized its Mission Essential Task Lists by unit type and developed objective measures of training readiness so our Commanders can more clearly assess readiness. Standards are based on decisive action combat tasks. These objective measures will enable a consistent view of readiness across the Total Army and simplify assumptions for force generation. The Army has clear readiness goals to improve overall readiness posture, and the details for a specific year can be provided in a classified venue, as needed. These goals are unattainable without sustained, predictable funding and elimination of the return of BCA impacts.

Admiral MORAN. Navy is developing specific interim benchmarks and timelines for recovery goals with the Office of the Secretary of Defense to best capture readiness metrics. Recovery goals and timelines remain closely tied to the Navy's Optimized Fleet Response Plan (OFRP). For OFRP to work as designed in providing maximum employability of units, one of its key lines of efforts, ship & aviation maintenance, must be funded to required levels in a stable manner over time to ensure any benchmarks or timelines that do get established are achievable.

General WALTERS. The Marine Corps has established interim deadlines, but these deadlines could be impacted by budget uncertainty and evolving operational commitments:

- All OEF ground equipment was retrograded as of December 2014. The initial target for completion of the reset of this equipment was two to three years after the last equipment item retrograded from Afghanistan. That target date, however, was extended to May 2019 in order to allow for the reset of additional MRAPS.
- The key to an aviation "Ready bench" is fixing and flying aircraft. The Marine Corps is fixing aircraft in two ways: by executing a Readiness Recovery Plan (current readiness), and buying new aircraft as fast as possible (future readiness). By aggressively adhering to and funding the Readiness Recovery Plans,

and by making the necessary manpower, training and policy changes of the recovery plan, the Corps achieves an across the board T-2.0 readiness by June 2019, and no later than fiscal year 2022 have the Ready Bench capable of responding as the Nation's Crisis Response Force.

- Marine Corps Force 2025 identifies the critical capabilities and organizations required to ensure future readiness and to meet the requirements of the future operating environment, as described in the Marine Corps Operating Concept (MOC).

The Marine Corps is working with DOD to establish service goals to reconstitute readiness to execute the 2016 National Military Strategy, but a stable fiscal planning horizon is necessary for success. With the resources available, the Marine Corps is not anticipated to reconstitute a "ready bench" within this Fiscal Year Defense Program.

General WILSON. The Air Force uses the term "full-spectrum readiness" to describe Air Force units achieving operational capability in advanced warfighting skills. Given the time required to recruit and train airmen, the Air Force projects no substantial readiness improvement until fiscal year 2020-21, when conditions are expected to be set for readiness recovery. Unit readiness assessments are constantly monitored against the requirements of the National Military Strategy for major force elements.

MAINTENANCE AND SUSTAINMENT COSTS

10. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, the increase in operational tempo has resulted in an increase in utilization rates for all our equipment and weapons platforms. How does that impact life expectancy and maintenance costs of those systems?

General ALLYN. Increased operational tempo reduces life expectancy and increases costs to sustain equipment and weapon system platforms significantly. We have sought to mitigate these impacts through programs such as Reset, Recapitalization (RECAP), and Service Life Extension Programs (SLEP). Sustaining resources for these critical programs is essential.

Admiral MORAN. For naval aircraft, service life and maintenance periodicity is largely defined by flying hours with additional considerations for fatigue from how the aircraft is flown during those hours. Higher operational tempo results in reaching these flying hour and fatigue milestones sooner than planned. This results in more frequent maintenance, and therefore, higher cost, as well as requiring extensive and expensive service life assessment and extension programs to meet aircraft inventory requirements. For ships, both operation and time-dependent factors impact service life. Major preventative maintenance actions are bundled into regularly scheduled depot availabilities, to maximize preparedness for deployments and inter-deployment cycle readiness while also ensuring ships reach their expected service life. Both the bundling and periodicity of these availabilities are determined by design and engineering analysis based on assumed operational tempo and schedule compliance. During the Navy's period of highest operational tempo from 2001-2009, surface ships frequently delayed, skipped, or received shorter depot maintenance availabilities than planned in order to meet presence requirements. This practice, as cited in the Balisle Report, put our surface forces at risk of falling far short of their expected service life, and contributed to the early decommissioning of the *Oli-ver Hazard Perry*-class frigates and the extensive modernization periods required for the *Ticonderoga*-class cruisers and some amphibious ships. Even when depot availabilities are executed per plan, operational tempo drives some maintenance costs. Since 2001, as force structure has shrunk, underway days per ship, both deployed and non-deployed, have steadily risen in response to the increasingly dynamic international security environment. This results in more wear-and-tear on the ships, with less time to conduct repairs in port outside of major availabilities, both of which contribute to growing corrective maintenance costs.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. The increase in operational tempo and utilization rates causes our equipment and weapons systems to reach the end of their planned service life more rapidly. This also causes maintenance costs to be accrued earlier than the Air Force originally planned. When our systems must be used beyond their planned service life, additional and potentially costly maintenance actions, inspections, and testing are required in order to ensure our systems continue to be operated safely.

11. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, what does that do to each of your service's procurement and modernization plans?

General ALLYN. The Army must balance maintaining current fleet readiness by incrementally upgrading capability on legacy platforms with the cost and opportunity of developing next-generation equipment to prepare for future conflicts. The challenge we face is providing the best equipment for current combat operations today, while preparing for conflict with a near-peer in the near future. The Army has been challenged to modernize for the last 15 years because funding constraints mandated the prioritization of readiness for current operations while accepting risk through decreased investments in next generation capabilities. To achieve immediate readiness goals we prioritize getting the best equipment available into units with modest upgrades. Going forward, the Army must focus equipment modernization on re-establishing overmatch and simultaneously developing new military capabilities to deter and, if necessary, defeat emerging regional and global peer adversaries. This balance is evaluated in the Army's new Strategic Portfolio Analysis Review process. Due to funding constraints, the Army has cut investments for modernization and equipment by one-half compared to just eight years ago. The Army is investing in new development of prioritized programs to help close extremely high risk gaps against peer competitors. Today's fiscal environment impedes the Army's ability to achieve both a high state of current readiness and modernize the force to a level that would allow a technological over-match against potential near peer adversaries and meet war plan demands. To meet the demands of today's unstable global security environment and maintain the trust of the American people, the Army requires adequate, sustained long-term and predictable funding.

Admiral MORAN. Increased utilization rates magnify the historic tension between maintaining the fleet we have and building the fleet we need for the future fight. Increased rates burn through programmed and projected service life of our equipment faster than planned, increase deployment demands on our personnel, and provide additional near-term requirements for training to meet a higher-than-expected operational tempo, negatively impacting our ability to sustain our force today and what we can afford tomorrow. In recent years, fiscal constraints from the Budget Control Act (BCA) and Bipartisan Budget Act (BBA) have further exasperated this issue. Representative examples of mitigation decisions follow: Within Aviation, the challenge of end of life planning and inventory for legacy F/A-18A-D aircraft has required the Department to procure additional F/A-18E/F aircraft. In the mid-term, the Department is focusing on F/A-18E/F service life extension. In the far-term, the Department is focused on sustaining inventory capacity with new aircraft procurement (F/A-18E/F and F-35), and incorporating capability improvements to maintain combat relevancy. Within Surface, ships such as the *Ticonderoga*-class (CG-47) cruisers will be inducted into an emergent phased modernization program that align with ship retirements to prevent unacceptable reductions in available force structure. This innovative plan permits Navy to reapply manpower from ships in phased modernization to address other manning shortfalls while simultaneously avoiding the operating costs for these ships while they undergo maintenance and modernization.

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General WILSON. These conditions have jeopardized future Air Force modernization and recapitalization efforts at a time when demand for Air Force capability is increasing and our advantage over competitors is shrinking. We have attempted to balance the risk across our force to maintain readiness but have been forced to make unacceptable tradeoffs between readiness, force structure, and modernization.

12. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, how do you plan to reverse this trend?

General ALLYN. Reversing the trend requires increased base funding for the Army's modernization program. In the interim, we will sustain prioritized upgrades of our current weapon systems and tightly focused new developments to close immediate capability gaps. Simultaneously, we'll do our best to keep our aging fleets ready through reset and recap programs. Reset reverses the effects of combat stress on equipment. Reset, Recapitalization (RECAP) or Service Life Extension Programs (SLEP) can improve weapon system platform performance capabilities and return select weapon systems to a "zero mile/zero hour" condition with original performance specifications. For example, the Army is enhancing reliability of UH-60 Blackhawk Helicopters, M1A2 Abrams Tanks, and Patriot Missile systems through the RECAP program.

Admiral MORAN. The current funding levels do not support the readiness levels that the Navy needs to maintain in order to support the Defense Strategic Guidance. Underfunded accounts force hard choices between current and future readiness and will negatively affect force structure levels, degrading Navy's ability to meet scheduled and unscheduled operational requirements. Navy will apply additional resources granted by Congress to the highest priorities laid out in the Defense Strategic Guidance, but will take risk in our ability to fill lower-priority mission areas, such as presence missions outside of areas of conflict.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. If our weapon systems must be operated beyond planned service lives, additional life extension programs must be considered and upgrades to key components may be necessary. The Air Force will need to make difficult trades between modernization, force structure investment and readiness to ensure our aging weapon systems remain operationally effective, while we bring newer systems online.

MODERNIZATION

13. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, what are each of your service's priorities over the next five years for modernizing its key combat capabilities?

General ALLYN. The Army's top ten modernization priorities for the next five years are:

1. Air and Missile Defense (Short Range Air Defense (SHORAD));
2. Long-Range Fires;
3. Munition Shortfalls;
4. Mobility, Lethality and Protection of Brigade Combat Teams;
5. Active Protection Systems—Air and Ground;
6. Assured Position, Navigation, and Timing;
7. Electronic Warfare;
8. Offensive and Defensive Cyber Capabilities;
9. Assured Communications;
10. Vertical Lift.

Admiral MORAN. We are committed to modernization through investments in critical programs such as CG, DDG, and LSD-class modernization and upgrades to F/A-18 E/F Super Hornets. Aircraft carrier modernization will support current and future carrier air wings (to include JSF and future unmanned aircraft) in evolving operational and threat environments while ensuring ships reach their 50-year expected service life. We are building the *Columbia*-class ballistic missile submarine, and adding new capabilities to the *Virginia*-class submarine, F-35 Lightning II, P-8 Poseidon, and the development of unmanned systems. Through sound investment decisions, we will build Navy future force capability and capacity designed to overmatch the threat.

General WALTERS. The F-35B and F-35C Joint Strike Fighter remains the Marine Corps' top aviation acquisition priority as we continue our transition from legacy F/A-18A-D, AV-8B and EA-6B platforms to the 5th generation strike/fighter. Additionally, the transition of our heavy lift rotary-wing aircraft from the CH-53E to the CH-53K remains a top priority. Over the next five years Marine Aviation will enter the heaviest years of aircraft transition and modernization in its history.

The Amphibious Combat Vehicle (ACV), Joint Light Tactical Vehicle (JLTV), and the Ground / Air Task Oriented Radar (G/ATOR) are the Marine Corps' top ground acquisition priorities although G/ATOR will support the entire MAGTF in ground and aviation mission sets. While these programs will be in full rate production over the next five years, the Marine Corps will also be taking every opportunity to address other modernization priorities wherever possible to ensure we remain a Lethal Force with a 21st Century approach to combined arms that integrates information warfare, long-range precision fires, and air defense and seeks to destroy and defeat our enemies across five domains— air, land, sea, space, and cyberspace.

General WILSON. The Air Force's priorities over the next five years include funding our Top 3 modernization programs: F-35, KC-46, and B-21. We are also committed to investing in our key mission areas, to include Nuclear, Space, Cyber, Intelligence, Surveillance, and Reconnaissance; and modernizing legacy fighter capabilities.

14. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, to what extent has each of your services prepared a long-term funding plan for your modernization efforts?

General ALLYN. This year, the Army initiated an extensive Strategic Portfolio Analysis Review (SPAR) which will occur annually to inform future resource decisions. The SPAR reviewed Army capabilities over a 30-year period, evaluated each program's relative worth, assessed our strategic priorities, and identified investment and divestment opportunities. By prioritizing the needs of the Army, the leadership can more accurately identify where available modernization funding will be invested.

Admiral MORAN. Years of sustained deployments and constrained and uncertain funding have taxed the readiness of the fighting force requiring tradeoffs in capability, capacity, and readiness. Under current fiscal constraints, we have prioritized near-term readiness, but the fiscal realities facing the Navy make it imperative that we modernize and extend the service lives of our in-service ships, aircraft and weapons to meet warfighting requirements. The nation faces an increasing array of diverse threats, thus Navy must fund modernization programs that provide the capability necessary to defeat current and future threats. Absent sufficient funding for readiness, modernization and force structure, the Navy cannot return to full health, where it can continue to meet its mission on a sustainable basis. The Navy intends to ensure that the ships and aircraft in inventory are maintained and modernized so they provide the full measure of combat power to the combatant commanders. Navy continues to modernize its *Ticonderoga*-class (CG-47) guided missile cruisers and amphibious dock landing ship and lay them up for a phased modernization plan. Cruiser modernization ensures long-term capability and capacity for purpose-built Air Defense Commander (ADC) platforms. Additionally, an important facet of the Navy's plan is to modernize the Arleigh Burke class destroyers which includes Hull, Mechanical, and Electrical (HM&E) upgrades as well as combat systems improvements with upgraded AEGIS weapons systems, 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. The Navy continues aviation recapitalization of all major platforms, has increased procurement of F/A-18E/F and F-35 aircraft, and made key modernization investments. The fiscal year 2017 budget request increases both the F/A-18E/F and F-35 strike fighter aircraft procurement in order to mitigate near-term and far-term risks to our strike fighter inventory and invests in priority aircraft modernization. Important modernization efforts include Joint Strike Fighter Follow-on Modernization, the E-2D Advanced Hawkeye, F/A-18E/F service life extension, and incremental improvements to P-8s. Critical to power projection from the sea, our new and upgraded airborne early-warning aircraft, the E-2D Advanced Hawkeye, completed Fleet integration and deployed with USS *Roosevelt* (CVN 71) Carrier Strike Group. Finally, the Navy's modernization strategy invests in the modernization of current weapons to support them through their service lives including 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.

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General WILSON. Each year the Air Force Planning process produces a 30-year resource allocation plan that builds the best Air Force possible to meet the current National Strategy, given projected Total Obligation Authority. The plan addresses Air Force fighter/bomber needs; Space, Cyber, and Nuclear modernization; and overall Air Force readiness, among other priorities.

15. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, what will it cost each of your services to modernize, where will the resources come from, and how will the modernization plan be sequenced?

General ALLYN. The Army requires stable and predictable funding to achieve our most pressing modernization objectives. The level of modernization we plan for is governed by our near-term readiness needs, the size of the force, and the fiscal limits established by the administration and Congress. The Army conducted a Strategic Portfolio Analysis Review to establish our priorities for Army capabilities over a 30-

year period and evaluated each program's relative worth in a fiscally informed manner. Air and missile defense; long-range fires; munitions shortfalls; and the mobility, lethality, and protection of our Brigade Combat Teams are the immediate focus of our modernization efforts. The challenge we face is providing the best possible equipment for combat units to fight tonight, while simultaneously preparing for conflict with a near-peer in the future. Given the current situation in the world coupled, with fiscal constraints, we are prioritizing equipment upgrades that will have the greatest impact against near-peer threats and can be in the hands of soldiers in the next 10 years. We are taking advantage of limited opportunities to pursue prototyping to fill pressing capability gaps faster by leveraging existing systems or technologies. Our greatest challenge is that investment in new development is fiscally constrained, and we are focused on extremely high risk capability gaps. Absent increased funding, in the near future we face the very real possibility of losing our qualitative overmatch.

Admiral MORAN. The President's Budget 2017 Alternate Budget Submission includes the Navy's best approach to addressing this complex challenge. Each budget cycle presents competing requirements between maintaining the force that we have (readiness), modernizing the force we have, and buying the future force we need. In our readiness analysis we recognize that near-term readiness-focused plus-ups must be enduring in order to ensure the sustainment of appropriate readiness levels. This sustained readiness funding will apply pressure on those resources available for modernization and recapitalization. As a result, under current funding levels, Navy will struggle to recapitalize its current force, and be unable to grow without additional funding. Navy is pursuing innovative solutions that accelerate the fielding of new capability. First, we are finalizing the implementation of the Navy's Acceleration Acquisition strategy which seeks to streamline acquisition for key programs of record, and accelerate the prototyping, experimentation, and demonstration of critical technologies that make have the potential to change the way we fight in the future. Next, we are experimenting with different analytic tools to more precisely define total lifecycle costs, and the impacts of individual force structure decisions on the elements that generate force readiness: Personnel, Equipment, Supply, Training, Ordnance, Networks, and Installations. We believe these two efforts will target the key areas for investment and cost reduction to support building the modern naval force.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. To fund the Air Force that will dominate against a peer adversary requires predictable and sustained investment above current levels. The Air Force will build the best force possible within the Total Obligation Authority (TOA) level received, and resources will come from efficiency efforts, divestitures, and increased TOA. Sequencing is challenging as the Air Force must carefully consider trades between capability, capacity and readiness and make hard choices within available funds to reach our 30-year plan goals.

16. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, how are each of your services balancing the short-term requirement to repair or rebuild old equipment with longer-term efforts to replace that same equipment with next-generation equipment?

General ALLYN. The Army must balance maintaining current fleet readiness by incrementally upgrading capability on legacy platforms with the cost and opportunity of developing next-generation equipment to prepare for future conflicts. The challenge we face is providing the best equipment for current combat operations today, while preparing for conflict with a near-peer adversary in the near future. The Army has responsibly provided the critical equipment to succeed in counterinsurgency and counterterrorism operations over the past 15 years, but has not modernized for the higher-end of warfare. To achieve immediate readiness goals we prioritize getting the best equipment available into units with modest upgrades. The Army must focus equipment modernization on re-establishing overmatch and simultaneously developing new military capabilities to deter and, if necessary, defeat emerging regional and global peer adversaries. This balance is evaluated in the Army's new Strategic Portfolio Analysis Review process. The Army has half the funding for modernization and equipping our force compared to just eight years ago. The Army is investing in new development, in prioritized programs to address extremely high risk capability gaps. Today's fiscal environment constrains the Army's ability to achieve both a high state of current readiness and sufficient investment to modernize the force to a level that would allow a technological over-match against potential near-peer adversaries and meet war plan demands. To meet the demands of today's unstable global security environment and maintain the trust of the Amer-

ican people, the Army requires adequate, sustained long-term and predictable funding.

Admiral MORAN. The Navy has funded near term maintenance requirements to ensure a high level of operational readiness for deploying units by accepting risk in the modernization and maintenance of our shore infrastructure, including shipyards, aviation depots, ordnance storage and handling facilities, piers, runways, hangars, utility systems, and other support facilities. Long term underinvestment in these facilities is taking a toll on our ability to support deploying forces and require significant recapitalization efforts which are currently unaffordable within the existing budget.

General WALTERS. Modernization, the key to future readiness, is essential to evolve the Marine Corps to out-pace future threats and establish a “5th Generation MAGTF” capable across all warfighting functions in all domains. The Marine Corps of today is largely optimized for the past and continues to sacrifice modernization to sustain current readiness for deploying units. In the current austere funding environment, the Marine Corps has been forced to make decisions that accept near-term risk by emphasizing incremental capability modernization over warfighter fielded capacity.

Currently, Marine Aviation is a little over one-third complete with the transition of every tactical platform in its inventory. Our transition plan recapitalizes current squadrons with transformational technologies—5th generation STOVL strike/fighters, tilt-rotor technology, advanced heavy lift helicopters, and modernized amphibious based Group 3 and Group 5 Unmanned Aircraft Systems. As this transition is ongoing, we have completed a series of independent readiness reviews (IRRs) with the goals of increasing the number of Ready Basic Aircraft (RBA), building comprehensive strategies to recover our readiness, and meet flight line entitlement warfighting requirements. These reviews are intensive and dispassionate, and give us an in-depth look at the issues and concerns in each community. To date we have completed IRRs for the AV-8B, CH-53E, and the MV-22B while the H-1 IRR is in progress this year.

- CH-53 IRR: We are executing our CH-53E Super Stallion readiness recovery reset. Per the planned reset induction schedule there are currently 16 aircraft in reset between the East Coast, West Coast, and Hawaii. Three CH-53Es are complete with the reset now, and they are the finest performing aircraft across the entire heavy lift fleet; we anticipate the entire CH-53E fleet to be reset in the next three to four years. This reset process is breathing new life and reliability into the CH-53E fleet, extending the viability of our heavy lift fleet until CH-53K arrives.
- MV-22 IRR: From the outcome of the V-22 IRR we found that we need to have one configuration of the Osprey; right now we have about 77. The answer to why we have so many variants lies within how the acquisition and fielding of the MV-22 occurred. Always needing the latest and greatest forward capability, we chose to deploy the aircraft as soon as the first combat capability existed. Since the start of fielding, the aircraft has advanced in areas such as reliability, performance and capability. The Independent Readiness Review identified many factors, to include the transfer and cannibalization of these aircraft which can also contribute to different configurations, and which identified the solution as a common configuration. Common Configuration Readiness and Modification (CC-RAM) is a disciplined approach to put some of those pieces in place and reduce the complexity of the environment from 77 configurations to 3. One example is the use of a standard and more improved aircraft nacelle.
- AV-8B IRR: This review identified a cost-effective strategy through the remainder of the Harrier’s service life to produce the required squadron T 2.0 standard. To date we have seen a 26 percent increase in pilot hours per month, and a 23 percent increase in squadron RBA throughout the AV-8B community.

The real key to attaining next generation capabilities and recovering readiness is through transition. Due to our aging aircraft fleet, we have to focus on both current readiness while we simultaneously recapitalize TACAIR with the F-35B/C, complete the H-1 transition, and soon initiate the transition to the CH-53K.

Like Aviation, our Marine Corps ground programs which we choose to emphasize, at the risk to other programs, includes:

- The AAV survivability upgrade which will continue to provide a ship to shore self-deploying capability bridge until we have replacement for our 40 year old AAVs.
- The ACV 1.1 is our first step in an incremental approach to replacing those AAVs.

- The JLTV is a joint USMC/U.S. Army program to procure the next generation replacement for the venerable HMMWV.
- CAC2S and G/ATOR provide an ability to control our airspace enabling freedom of action to employ our organic weapons with the speed and tempo that makes the Marine Air Ground Task Forces successful.
- CESAS II, Intrepid Tiger II, NOTM, and MQ-21 are some of the new capabilities that we must buy to support the IW enablers.

The Marine Corps is in a regular evaluation cycle centered on the Combat Development and Integration Campaign of Learning that seeks to identify near term efficiencies that will allow us to invest in the modernization that will eventually realize the capabilities of the “5th Generation MAGTF”. However, in today’s funding environment, capability modernization can only be realized by accepting risk in warfighting capacity.

General WILSON. The fiscal year (FY) 2018 President’s Budget is currently under development. Looking back, the fiscal year 2017 budget request balanced short-term modernization with long-term recapitalization to maintain capability, capacity and readiness while living within fiscal constraints.

FLIGHT TRAINING

17. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, are each of the service’s flying hour programs properly sized to support full spectrum readiness requirements?

General ALLYN. Army Aviation is currently funded to train to platoon- and company-level collective training, which is insufficient to achieve decisive action, or full spectrum, readiness requirements against a near-peer enemy. Although sufficient to meet readiness requirements for current contingency operations, failure to train to decisive action readiness at the battalion level increases the risk to our aircrews, and it risks degrading mission effectiveness in a higher threat environment. The Army is currently facing challenges in achieving higher levels of collective readiness due to shortages in pilots and aircraft. Additionally, Army Aviation is nearing the end of major force structure reorganization (Aviation Restructure Initiative) and taking deliberate steps to address training, manning, and equipping constraints. In order to address our manning shortages, the Army is increasing flight school training throughput, increasing warrant officer accessions and pursuing incentives to adequately man the force. In order to address our aircraft shortages, the Army is leveraging multi-year procurement programs and requesting increased levels of resourcing beginning in fiscal year 2017 to fill holes across the Aviation structure. The Army will require sustained and predictable funding to achieve full spectrum aviation readiness. Funding at Budget Control Act (BCA) levels or extended periods operating under Continuing Resolutions (CR) will inhibit the Army’s mitigation measures and delay our ability to achieve the readiness levels required against a near-peer enemy. Additional flight hours and the capacity of trained pilots and mission capable aircraft to execute our combined arms training strategy will increase proficiency in decisive action readiness and reduce risk.

Admiral MORAN. The appropriate level of sustained readiness for the “full spectrum requirement” in peacetime is 80 percent of that requirement. The flying hour program supports the Optimized Fleet Response Plan, a force generation construct that provides naval aviation forces of the “right readiness, right cost, at the right time.” Specifically, aviator and aircrew flight hour requirements are established to support platform specific mission proficiency through training flights and real world operations. Reductions in available funding have necessitated reduced readiness for forces early in the training cycle. The Navy mitigates risk through the use of a tiered readiness approach that limits flight hours for aviators during squadron maintenance and work up periods, and increases proficiency as units prepare to deploy. The impact of this reduced level of funding is the dearth of forces able to surge from homeport to support the deployed forces on the line in case of conflict. Increased flying hour funding will improve the readiness of the surge forces.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. The U.S. Air Force fiscal year 2017 flying hour accounts were programmed to the levels we could execute, though still 8 percent below the minimum requirement for ready aircrew due to manpower and aircraft availability issues. Higher execution rates are limited by shortfalls in appropriately trained critical personnel (primarily maintenance manpower), reduced availability of older legacy aircraft systems, and ongoing support to the current fight. As a result, we do not recommend additional unexecutable funding for the flying hour program at this

time. However, we will require plus ups to the flying hour program across the Future Years Defense Program as existing shortfalls are improved.

The top investment priority to begin restoring full spectrum readiness is increasing end strength manpower. Additionally, deliberate increases in funding levels for weapon system sustainment, training resources and infrastructure are all necessary for full-spectrum readiness recovery.

18. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, how does the hours our combat flight crews are getting today compare to the hours they were flying in the 1980s and 1990s?

General ALLYN. Due to advances in technology and training, it is difficult to compare flying hours from the 1980s and 1990s to the present. The introduction of high-fidelity simulation devices enable more efficient and effective live training. The Army estimates that aircrews flew approximately 20 hours per month during the 1980s, and 14 hours during the 1990s. In 2016, Army aviators flew an average of approximately 10 hours per month, down from approximately 12.5 hours in 2014. Over the last 15 years, Army aviation has relied heavily on deployed flight time to establish a foundational base of experience. However, deployed flight time has decreased significantly since operations transitioned more toward an advise and assist mission profile. From 2006–2014, Army aviators flew an average of 31 hours per month while deployed. Since 2014, aircrews have flown an average of 10 hours per month while deployed. These reduced flight hours have permitted the Army to maintain sufficient rotary-wing aviation readiness to meet current operational requirements in the counterinsurgency operational environment, but they are inadequate for the lethality and complexity of operations against a near-peer adversary.

Admiral MORAN. Modern Navy aircrew are better trained and more ready for advanced air combat than at any time in the past; however, the standards required to achieve this level of proficiency are not supported by current funding levels. In 2016, Naval Aviation flew less than half the number of flight hours when compared to the highest flight hour execution point in 1989; 1.07 million versus 2.23 million flight hours. The Navy's newer planning factors for the Optimized Fleet Response Plan (OFRP) have reduced required training flight hours. Training requirements are now based on where the aircrews are in the training cycle, and high fidelity simulators have reduced the required time to train, making comparison difficult.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. USAF pilots fly less annual training hours today than in past decades. In the 1980s fighter pilots flew an average of 213 hours; in the 1990s–205 hours; in the 2000s–183 hours; and previous 12-months (Apr 16–Mar 17) 149 hours. In the 1980s bomber pilots flew an average of 233 hours; in the 1990s–190 hours; in the 2000s–223 hours; and previous 12-months (Apr 16–Mar 17) 156 hours.

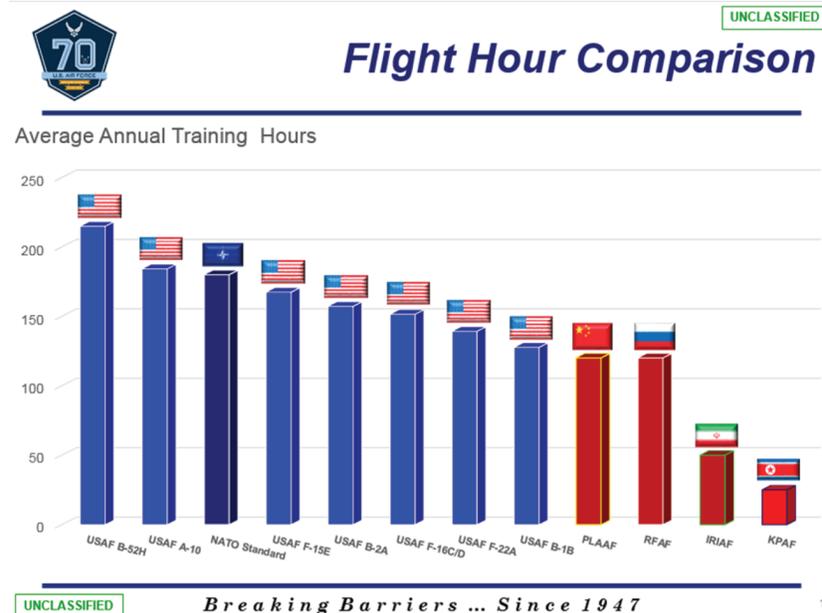
19. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, how do the hours our combat flight crews are getting today compare to other nations?

General ALLYN. Currently, U.S. Army aviators are flying approximately 10 flight hours per month. However, to achieve collective training proficiency for decisive action readiness against a near-peer adversary, we estimate a need to fly between 14 and 15 hours per month. NATO published standards that pilots should achieve a minimum of 140 hours per year, or approximately 11.6 hours per month to meet basic individual proficiency requirements. A recent query of other nations (France, Germany, Italy, Australia, Netherlands, and the UK) revealed standards similar to those set forth by NATO. These nations would also require additional hours to achieve the collective level proficiency necessary for decisive action readiness against a near-peer enemy.

Admiral MORAN. U.S. Naval Aviators maintain an advantage over Russian/PLAN aviator counterparts when it comes to sheer quantity of flight hours (approximately 200 per year versus roughly 120 per year), and we are consistently upgrading and providing state of the art training for our aviators. However, our competitors have watched how we train and they are becoming more proficient, reducing the competitive advantage the U.S. Navy enjoys.

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General WILSON. Current USAF flight hours approximate the NATO Standard and exceeds the flight hours of potential adversaries.



20. Senator INHOFE. General Allyn, Admiral Moran, General Walters, General Wilson, what impact does reduced flight hours have on readiness, experience, proficiency, and safety?

General ALLYN. Reduced flight hours inhibit the Army's ability to develop the experience and proficiency necessary to achieve the readiness levels required to defeat a near-peer enemy at an acceptable risk. Due to budget constraints, Army Aviation is currently funded to train to platoon and company-level collective training, which is insufficient to achieve decisive action, or full spectrum, readiness requirements against a near-peer enemy. The Army also faces manning and equipping shortages which impact achieving higher levels of collective readiness. Over the last 15 years, Army aviation has relied heavily on deployed flight time to establish a foundational base of experience. However, deployed flight time has decreased significantly since operations transitioned to an advise and assist role. From 2006–2014, Army aviators flew an average of 31 hours per month while deployed. Since 2014, aircrews have flown an average of 10 hours per month while deployed. Despite the reduced flight hours, however, the accident rate of 1.33 accidents per 100,000 flight hours from 2010 to present represents an all-time low. Additional flight hours and the capacity of trained pilots and mission capable aircraft are necessary to enable our aircrews to execute combined arms training, which will increase their proficiency in decisive action readiness and reduce risk in a conflict with a near-peer enemy.

Admiral MORAN. Reduced flight hour execution, as a result of fewer Ready Basic Aircraft on flight-lines has a direct, negative impact on readiness, experience, proficiency and safety. These negative impacts were validated in a 2015 Center for Naval Analyses (CNA) study which found extended periods at very low flight hours resulted in extremely low readiness, decreased flying experience, decreased warfighting proficiency and higher risk of experiencing a pilot causal factor (PCF) mishap. The Navy refers to this as the Tactical Hard Deck (THD). The same study discovered pilots are 50 percent more likely to have a PCF mishap when flying at THD; the risk increases even more when flying below THD. Hours flown below Optimized Fleet Response Plan standards reduce the number of tasks aircrew (Naval Aviators, Naval Flight Officers and Naval Aircrewmembers) perform towards primary mission areas. Specifically, CNA found aircrews fly 25 percent fewer tactical training flights per month when the units are operated at THD. This reduces their readiness levels, as well as their experience and proficiency at those tasks, preventing full spectrum readiness. Naval aviation strives to maintain readiness levels through prioritization of units preparing to deploy and deployed; however, this leaves non-

deployed units at home with fewer hours to execute and fewer aircraft to fly. These lower readiness levels for non-deployed units also leads to slower progression and attainment of aircrew milestones and directly affects retention within Naval Aviation. Where aviation safety is concerned, readiness gaps are considered to be situations in which: A. There were insufficient numbers of Sailors to perform maintenance functions, or; B. Sailors were insufficiently trained to perform maintenance functions, or; C. Insufficient parts or equipment were available to produce an adequate number of Mission Capable aircraft in order to provide sufficient flying time to maintain aircrew proficiency, or; D. Known aircraft deficiencies were not corrected in a timely manner due to insufficient resources. Aviation mishaps are typically caused by a number of causal factors and it is often difficult, if not impossible to say with certainty a single factor, such as a readiness gap, was the primary causal factor. The Naval Safety Center carefully reviewed Aviation Class-A Flight Mishaps (damage of \$2 million or more and/or aircraft destroyed, and/or loss of life) for the period between fiscal year 2012 and fiscal year 2016 to see if there was a readiness component. The Naval Safety Center believes of 44 Class-A Flight Mishaps for the period fiscal year 2012 through fiscal year 2016, three of 44 mishaps (6.8 percent) had a readiness component.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. Fewer flight hours generally reduces repetition that build the habit patterns required to gain proficiency in flying tasks which prepare aircrews for combat. It also equates to a longer time period for inexperienced pilots to become experienced in their platform. Less proficient pilots that take longer to gain expertise will also have a more difficult time maintaining that expertise. In addition to being fiscally inefficient, reduced flight hours decrease overall Air Force readiness and increase risk to combat operations.

NUCLEAR READINESS

21. Senator INHOFE. General Wilson, the Air Force is responsible for two legs of the strategic nuclear triad as well as tactical fighter aircraft assigned to regional nuclear missions. What is your assessment of the readiness of those nuclear forces to conduct strategic deterrence missions as well as to provide support to regional combatant commanders in the event of a regional crisis or on-going conventional conflict?

General WILSON. Air Force nuclear deterrence forces, including both dual-capable and nuclear-only platforms, are ready to perform their full range of assigned missions. However, many of these systems were last recapitalized in the 1980s and are operating decades beyond their intended service lives. Should planned modernization programs be delayed or deferred, the Air Force's ability to provide the Nation with credible and effective nuclear deterrence in the future could be at risk.

22. Senator INHOFE. Admiral Moran, what is your assessment of the readiness of the nuclear ballistic missile submarine force to carry out strategic deterrence patrols?

Admiral MORAN. The Navy's SSBN force and supporting facilities are safe, secure, and effective at meeting the requirements identified by the Strategic Command (STRATCOM). The SSBN force is sized and maintained to keep the required number of platforms properly positioned, postured and survivable at all times.

QUESTIONS SUBMITTED BY SENATOR JONI ERNST

FOREIGN LANGUAGE PROFICIENCY

23. Senator ERNST. General Allyn, the fiscal year 2017 NDAA conference report highlights the importance of foreign language proficiency in maintaining military readiness. Accordingly, the Defense Language Institute Foreign Language Center (DLIFLC) has had a requirement for copyright-covered, authentic-content foreign language training material in two successive years. That requirement was fully funded, but under-executed by \$5 million, in fiscal year 2016. DLIFLC's budget request and requirements for fiscal year 2017 remain unchanged. What is the status of the approved Performance of Work Statement in the contracting process?

General ALLYN. DLIFLC is always required to provide authentic foreign language training materials. Current information technology provides access to authentic foreign language materials. Therefore, DLIFLC no longer requires a contract for this general capability. DLIFLC would, however, benefit from assistance with copyright permissions. A previous contract included both assistance with access to authentic

foreign language materials and copyright permissions. The scope and cost of this contract was in excess of Army requirements. Because the contractor declined to tailor its contract to meet actual requirements, U.S. Training and Doctrine Command (TRADOC) and Headquarters, Department of the Army (HQDA) chose not to renew the contract. DLIFLC has developed a performance work statement for submission in late fiscal year 2017 to contract for the capability to gain copyright permissions for authentic foreign language materials in certain targeted languages at higher levels of proficiency. We expect this contract to go out for competition in fiscal year 2018.

24. Senator ERNST. General Allyn, how can Congress be assured DLIFLC will meet this requirement through a competition this calendar year?

General ALLYN. As the Executive Agent for DLIFLC, the Army remains committed to generating readiness among linguists from all Services supporting Department of Defense missions. U.S. Army Training and Doctrine Command (TRADOC) and Headquarters, Department of the Army closely monitor all contracting actions. DLIFLC developed a performance work statement for submission in late fiscal year 2017. We anticipate the contract will be awarded in calendar year 2018.

25. Senator ERNST. General Allyn, how will a delay in meeting DLIFLC's own stated requirements impact military readiness?

General ALLYN. Because DLIFLC already has access to authentic-content foreign language materials, delays in this contracting action will have minimal impact on military readiness. Assistance with copyright permissions allows DLIFLC to incorporate authentic materials into its own organizational texts and teaching materials.

ARMY IMPROVED TURBINE ENGINE PROGRAM

26. Senator ERNST. General Allyn, during operations in Iraq and Afghanistan, the Army combined arms efforts were heavily integrated with assault, scout, and attack rotary wing aviation assets. In particular, due to the high-hot challenges in both theaters of operation, rotary wing aircraft were often required to limit payloads due to inadequate engine power for the mission or for the environmental conditions. The Army is pursuing the Improved Turbine Engine Program, or ITEP, to provide increased power, improved fuel efficiency, and reduced maintenance costs for the UH-60 Black Hawk and AH-64 Apache. Army leadership has previously pronounced ITEP as their #1 Army Aviation modernization program. Is ITEP still the Army's top aviation modernization priority?

General ALLYN. Yes, the Improved Turbine Engine Program (ITEP) is a top modernization priority for Army Aviation. Scheduled to enter Low-Rate Production in 2024, the Army is programmed to start bridging its rotary wing high/hot capability gap in 2026. In 2018, the Army will select a preliminary design and award the ITEP development to a single vendor. Once completed, this materiel solution will reduce cumulative sustainment costs and offer commanders the ability to deliver an unrestrained aviation maneuver capability, at less than high/hot conditions, increased engine power and fuel efficiency can be traded for helicopter range, speed, or lift capacity. Enhanced helicopter performance bridges the high/hot capability gap, assuring that the ITEP remains a top modernization priority.

27. Senator ERNST. General Allyn, do you anticipate continued support for this Army program for the Black Hawk and Apache fleets?

General ALLYN. Yes, the Improved Turbine Engine Program (ITEP) is balanced and fully funded in the Future Years Defense Program. Additionally, the Capabilities Development Document is scheduled for approval in the third quarter of fiscal year 2017. The ITEP extends the life of the current Black Hawk and Apache fleets and, contingent on funding, continues to be important to the Army.

QUESTIONS SUBMITTED BY SENATOR DAVID PURDUE

NEW JOINT MILITARY NET ASSESSMENT (JMNA) PROCESS

28. Senator PURDUE. General Allyn, Admiral Moran, General Walters, General Wilson, I understand that the joint staff is working on a new assessment, to be called the Joint Military Net Assessment (JMNA) that will include an assessment of what's needed to meet the threats and challenges we face, exclusive of budget limitations. What is being done by you and the joint staff to better assess readiness and our ability to meet the Mission Essential Task List ("metals") as well as our operation plans ("o-plans") at the combatant command level?

General ALLYN. The Army has adopted analytical processes to quantify the requirement for forces to meet Combatant Commander Contingency Plans, as focused by Defense Planning Guidance, in order to optimize a “sustainable” readiness force posture for contingencies. To enhance unit preparation for contingencies, we have adopted objective measures of training readiness for decisive action in unified land operations that will quantify unit training readiness levels. The Army’s role will be to provide input to the new Joint Military Net Assessment process.

Admiral MORAN. Navy actively participates in the Joint Combat Capability Assessment Group, whose purpose is to identify combatant command top concerns with respect to supporting combatant commander (CCDR) O-Plans, and provides input to JMNA. Working collaboratively with the Joint Staff, the group not only addresses O-Plan-related issues, but explores potential mitigation strategies and solutions that can be performed at the Joint and Service-level. Navy’s assessment of readiness to support CCDR’s O-Plan METLs is a continuous refinement process. Assessments of capabilities supported by the status of resources (personnel, equipment, supply, training, and ordnance) are reviewed and refined as required. This ensures the information provided to the CCDRs, via the Defense Readiness Reporting System Enterprise, is meaningful and accurate.

General WALTERS. The JMNA is a classified document. In general, HQMC continually assesses Combatant Commanders’ (CCDRs) OPLANs to ensure the Service is properly prioritizing its organize, train, and equip responsibilities. OPLAN assessment and evaluation incorporates Joint Staff, CCDRs, and Service planner analysis with Service training, capability development and readiness issues. The JMNA will highlight Marine Corps readiness concerns and assist Services in their efforts to identify combat and Service support necessary to mold a force that can deter, respond, and defeat adversaries in crisis and contingency situations. Coordination with the Joint Staff will enable the Joint Staff to identify total force areas of duplication, mitigate underfunded programs of record, and provide guidance to improve capability and capacity development in the future. Most significantly, the JMNA will allow Services coordinate a holistic course to improve national security and Defense Department readiness across the spectrum of conflict.

General WILSON. JMNA synthesizes disparate staff estimates into an overall assessment. Today, Air Force commanders assess their unit’s ability to meet their designed capability and any assigned Operations Plans on a monthly basis in accordance with the Chairman’s readiness system. The Joint Staff is working with the Services on recommendations to better assess readiness.

29. Senator PURDUE. General Allyn, Admiral Moran, General Walters, General Wilson, can you explain more about the new JMNA process, and why the joint staff has decided to take this on?

General ALLYN. I would have to defer to the Joint Staff to comment on their specific JMNA efforts which are in accordance with the Chairman’s title 10 responsibilities. NOTE: JS provided this proposed response. JS reached out through LA channels to Sen Perdue’s staff to ensure they have the information needed for JMNA and they understand it is a Joint Staff product should they have additional questions or concerns.

Admiral MORAN. JMNA addresses the Chairman of the Joint Chiefs of Staff (CJCS)’s strategic planning responsibility under title 10 U.S. Code § 153(a)(2)(c) to “[perform] net assessments to determine the capabilities of the armed forces of the United States and its allies as compared with those of their potential adversaries.” The assessment aims to inform CJCS recommendations about strategic, programmatic, budgetary, and force development choices by synthesizing ongoing assessment efforts to integrate an overarching view of Comprehensive Joint Readiness. The Joint Staff can provide additional information about their specific JMNA efforts if needed.

General WALTERS. The purpose of the JMNA is to assess the comprehensive readiness of the Joint Force to execute the National Military Strategy today and through the Future Years Defense Program (FYDP). The JMNA synthesizes ongoing assessment efforts to integrate an overarching view of comprehensive joint readiness. In particular, the JMNA assesses U.S. military capabilities, capacity and readiness against potential adversaries through the lens of the 4+1 problem sets and develops options for addressing gaps in key competitive areas. These options are intended to inform CJCS recommendations about strategic, programmatic, budgetary, and force development choices. The JMNA is a classified document. However, 2016 version is being finalized as the Joint Staff begins work on the 2017 version with OSD, the Services and Defense Department supporting establishment.

General WILSON. Under title X, the “CJCS is responsible for . . . performing net assessments to determine the capabilities of the armed forces of the United States

and its allies as compared with those of their potential adversaries.” The purpose of the JMNA is to develop an integrated assessment of the comprehensive readiness of the Joint Force to execute the National Military Strategy currently and through the Future Years Defense Program. It draws upon inputs from multiple existing Joint Staff processes in which the combatant commands and Services participate. For more detailed information, recommend contacting the Director, Joint Staff.

30. Senator PURDUE. General Allyn, Admiral Moran, General Walters, General Wilson, what do you expect this new assessment will find in terms of the difference between needs and resources?

General ALLYN. I would have to defer to the Joint Staff to comment on their expectations for JMNA conclusions. NOTE: JS provided this proposed response. JS reached out through LA channels to Sen Perdue’s staff to ensure they have the information needed for JMNA and they understand it is a Joint Staff product should they have additional questions or concerns. Impact of Continuing Resolutions on Readiness

Admiral MORAN. The JMNA informs the Chairman of the Joint Chiefs of Staff with strategic, programmatic, budgetary, and force development recommendations. The current JMNA assessment is ongoing and classified. I would have to defer to the Joint Staff to comment on any expectations for JMNA findings.

General WALTERS. The 2016 JMNA is classified. Generally, the assessment synthesizes existing assessments and compares U.S. military capabilities, capacities and operational approaches to those of our adversaries.

General WILSON. The Air Force expects the JMNA will highlight previously identified gaps between needs and resources consistent with Air Force analyses. The document is still in coordination, and while the Air Force and other Services participated in some of the processes that informed the JMNA, the Services did not participate in drafting the document itself. As such, for more detailed information, recommend contacting the Director, Joint Staff.

IMPACT OF CONTINUING RESOLUTIONS ON READINESS

31. Senator PURDUE. General Allyn, Admiral Moran, General Walters, General Wilson, when I visit bases in Georgia or talk to combatant commanders, one of the first things I hear is that continuing resolutions are hurting our military’s ability to plan and spend wisely. Do Continuing Resolutions (CR’s) make readiness more expensive?

General ALLYN. Absolutely yes. Under a CR, the Army’s funding is limited, by appropriation, to the rate spent in the prior year (fiscal year 2016) through the CR period. This forces prioritization decisions within available funding. Contract funding is limited to the duration of the CR period (fiscal year 2017 CR #2 – 270 days) as opposed to the full period of performance (generally one year), requiring multiple, less cost effective contracts. Contract administration is more expensive (in time and money) and contract prices increase as companies absorb the risk of uncertain funding and unpredictable periods of performance. Tradeoffs are required when CR funding levels are less than the President’s Budget Request. Programmed readiness / training is often deferred, scaled back, or cancelled. Uncertainty for contractors and higher commodity prices contribute to elevated readiness costs. The CR prevents new starts and production rate increases; low production rates often increase commodity prices and overall per unit costs.

Admiral MORAN. Yes, continuing resolutions (CR) drive inefficiencies into the execution of our budgets, creating redundant work and additional time and cost. For example, CR rules restrict funding obligations to only the CR period, driving the breakup of contract actions into multiple transactions that we otherwise would do once. CRs perpetuate labor intensive and cost prohibitive processes by increasing administrative workload throughout the Department, exacerbating our efforts to reduce headquarters workforce and adding stress/overload in contracting where we already have a critical skills shortfall. Two specific examples of CR impacts to cost are articulated below: Depending on the length of time, a CR can result in the deferral or cancellation of some planned execution due to a lack of time left to plan and execute the funding, which ultimately increases (bow waves) the requirements to subsequent fiscal years and often results in higher costs. Given the two-year planning, programming, budget and execution cycle, it becomes increasingly difficult to manage these shortfalls in the subsequent budget cycle. Navy Working Capital Fund (NWCF) rates are established to recoup expenses incurred by NWCF activities in carrying out workload requested by our Fleets. Fluctuations and uncertainty in the funds required to support demand for working capital funded activities, as well as cash reductions in the CR calculation, impact the net operating results (NOR)

and planned cash balances in NWCF accounts. For example, reduced shore command activity under a CR impacts the cash flow at our Facilities Engineering Commands for utilities. Protracted CRs not only impact the NWCF cash balance but also drive NOR losses that will cause future rates to increase in order to make up for the losses.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. A CR (especially long term) can make readiness more expensive. CRs impact our ability to do long term planning, introduce contractual limitations, and delay our readiness recovery leading to lost productivity, manhours and potential contractual fees.

32. Senator PURDUE. General Allyn, Admiral Moran, General Walters, General Wilson, what would be the impact of extending the Continuing Resolution to the rest of the fiscal year on readiness? How would this compare to a fiscal year 2017 appropriations bill at President Obama's request levels?

General ALLYN. An extended fiscal year 2017-long CR results in a depleted readiness / training account for U.S. Army Forces Command (responsible for training oversight for 750,000 soldiers) by mid-July 2017. A minimum of one combat training center rotation will be canceled, degrading deployment readiness for one BCT and negating critical developmental experience for hundreds of joint leaders. The Army will make prioritization decisions, delay or cancel new starts, delay or cancel contracts, and defer all collective training for non-deploying units. Combat vehicles will no longer be maintained in "ready to fight" conditions and spare part stockages will be depleted. Units will enter fiscal year 2018 with degraded equipment readiness levels. Most egregiously, all the readiness gains Commanders have fought to regain will begin a declining slope, immediately impacting near term readiness levels, and creating distrust between soldiers and their chain of command. An unready Army means high risk to mission success if deployed into combat and will result in higher casualties. Programmed Operation and Maintenance (O&M) funding increased in fiscal year 2017 (\$1.4 billion in Base and \$0.5 billion in OCO) above fiscal year 2016 levels. A year-long CR will prevent adequate funding for military pay, equipment, and readiness for the NDAA end-strength increase. These limitations have a direct, negative impact on the following:

- The CR also impacts funding for the POTUS directed OPTEMPO increases for C-ISIS operations, and the recently directed deployment of Terminal High Altitude Area Defense (THAAD) to USKF.
- The extended CR will prevent critical equipping in support of the Army's conversion of one Infantry Brigade Combat Team to an Armor Brigade Combat Team, impacting mission risk to two theaters in fiscal year 2018.
- Combatant Command Emergent/Urgent operational needs (ONS/JUONS): Counter-Unmanned Aircraft System (UAS); Offensive Cyber; Reactive Armor Tiles
- Total Force Readiness initiatives—secure and sustainable training and power projection platforms; cyber tools and platforms; communication and collaboration technology tools.
- The expected funding level under a year-long CR would prevent Army depots from rebuilding four Apache helicopters, two Blackhawk helicopters, several Patriot Air Defense systems, and upgrades to system software that is required and critical to ensure weapon systems communicate on the battlefield. This equipment is needed to fill critical gaps in our formations.

Admiral MORAN. Due to reductions from the Bipartisan Budget Act of 2015, high operational demand for naval forces in fiscal year 2016 and fiscal year 2017, fiscal year 2016 execution/closeout, and changes in operational plans since President's Budget 2017 submission, the Navy currently has significant shortfalls in our readiness accounts even from President's Budget 2017 levels. The Navy's fiscal year 2017 Request for Additional Appropriations (RAA) requests additional funding to address these shortfalls and improve warfighting readiness. In addition, the current conference report for the fiscal year 2017 Defense Appropriations Act, as passed by the House, includes an increase in funding for Navy readiness. While the increase would not be enough to fully address the readiness shortfall, every additional investment into readiness helps. Extending the continuing resolution (CR) for the entire fiscal year would continue to drive inefficiencies into the system, for readiness and across the entire Navy portfolio. The instability would force CR mitigating action that could impact morale, recruitment and retention, and future year budgets. Additionally, a CR prevents any type of reprogramming action, therefore, where the Navy

might have made choices in fiscal year 2017 to re-prioritize funding from other sources to address our readiness shortfalls, this option has been unavailable.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. A year-long CR reverses the efforts made in our readiness recovery ... taking us back to “just in time” readiness which increases the risk to the warfighter.

Under a year-long Continuing Resolution (CR), the Air Force must absorb a \$1.3 billion cut (fiscal year (FY) 2016 enacted is \$1.3 billion less than the fiscal year 2017 President’s Budget request) in the remaining five months of the fiscal year. Impacts to people, readiness and modernization are unavoidable as we would need to find executable options to solve the shortfall.

- Direct impact on our people and readiness recovery
 - o Halts efforts to grow Active Duty end-strength above 317,000
 - o Peacetime flying hours would be drastically reduced (i.e., -2 months = \$1 billion)
 - o Depot maintenance inductions would be delayed, impacting aircraft availability in fiscal year 2017 and beyond
 - o Facility projects would be limited to life/health/safety
 - o Civilian hiring freeze continues through end of year
- Severely impacts our modernization efforts
 - o Acquisition new starts, including MQ-9 upgrades, Joint Interagency Combined Space Operations Center, and C-130 Avionics Modernization Program Increment 2, would require anomalies
 - o We also would not be able to keep up with the demand for critical munitions such as Long Range Anti-Ship Missile and Joint Air-to-Surface Standoff Missile-Extended Range, further depleting our inventories.

33. Senator PURDUE. General Allyn, Admiral Moran, General Walters, General Wilson, what have been the impacts to readiness due to being on a seven-month CR for fiscal year 2017?

General ALLYN. Because the Army has fully funded training and readiness efforts year to date, an extended CR will result in no readiness funding for non-deploying, CONUS based unit training after mid-July. Some units in the Total Army, particularly Reserve Component units with Summer Annual Training events, will not reach programmed proficiency levels. Additional funding for modernization and maintenance is being deferred in order to provide full resources to prioritized units. Under a continuing resolution, the Army has to prioritize funding to deploying units, leaving soldiers and units with reduced training opportunities and less proficiency. The CR constrains the Army to fiscal year 2016 levels, which is \$225 million below the fiscal year 2017 Presidential Budget request. Some Commanders must sacrifice critical field training exercises and restrict funding to only individual and small unit training.

Admiral MORAN. Because of the House’s passage of the conference report for the fiscal year 2017 Defense Appropriations Act, and the President’s submission of a fiscal year 2017 Request for Additional Appropriations (RAA) to Congress, the Navy has delayed taking continuing resolution (CR) mitigating action in hopes that Congress will be able to pass a fiscal year 2017 Defense Appropriations Act with some or part of our RAA request. At this point, the Navy has prudently only taken minor mitigations that are reversible. This includes deferring ship operations parts and supply requisitions, and reducing support for training ranges and schoolhouses. However, if the CR is extended for a full-year and additional appropriations are not provided, then the Navy will be compelled to take more severe mitigating action because of the inability to drawdown more gradually at the end of the fiscal year. These actions will need to be executed when it becomes clear that Congress will not provide the necessary funding to support training, maintenance, and operations through the end of the fiscal year, based on the funding and time available at that point. Navy will make every effort to protect deployed forces, with impacts primarily focused on our non-deployed forces. Eventually, this will manifest in an inability to meet some future planned Global Force Management commitment. The frequency and duration of these gaps will be a direct function of the readiness shortfalls that remain uncovered by a continuing CR and any reductions to the Navy’s afloat readiness RAA requests.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. We have been able to mitigate risks and major impacts to readiness through Congressional approval of anomalies in the investment appropriation for increased production levels for munitions and the KC-46 contract to increase from 12 to 15 aircraft.

34. Senator PURDUE. General Allyn, Admiral Moran, General Walters, General Wilson, how much has the CR decreased funding for readiness programs for fiscal year 2017 compared to plans outlined in the budget request?

General ALLYN. Since the continuing resolution constrains the Army to approximate fiscal year 2016 enacted levels, the Army's flexibility to address readiness requirements is constrained compared to the fiscal year 2017 President's Budget Request because the Army cannot access the expected increased OPTEMPO funding of \$225 million.

Admiral MORAN. The CR has not decreased Operations & Maintenance, Navy (OMN) funding because fiscal year 2016 OMN levels are slightly higher than fiscal year 2017, so Navy activities are continuing to operate and plan on the assumption that they will receive the President's Budget 2017 requested amount. However, reductions from the Bipartisan Budget Act of 2015, high operational demand for naval forces in fiscal year 2016 and fiscal year 2017, fiscal year 2016 execution/closeout, and changes in operational plans since President's Budget 2017 submission have resulted in significant fiscal year 2017 readiness shortfalls from our President's Budget 2017 levels. The Navy's fiscal year 2017 Request for Additional Appropriations (RAA) requests additional funding to address these shortfalls and improve warfighting readiness. Additionally, the Continuing Resolution prevents any type of reprogramming action, therefore, where the Navy might have made choices in fiscal year 2017 to re-prioritize funding to address our readiness shortfalls, this option has been unavailable.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. The Continuing Resolution funds the Air Force at fiscal year (FY) 2016 enacted levels, which is \$1.3 billion less than the fiscal year 2017 President's Budget submission.

35. Senator PURDUE. General Allyn, Admiral Moran, General Walters, General Wilson, could you briefly, discuss the impact on your respective services should the BCA caps go back into effect for fiscal year 2018, as they are slated to do in current law?

General ALLYN. At current strength and readiness levels today, the Army remains at high military risk to simultaneously defeat and deny significant adversaries, continue to support counterterrorism operations and defend the homeland as called for by Defense Planning Guidance. A return to BCA funding levels will negate the hard earned readiness gains and prioritized modernization efforts achieved over the past four years since sequestration in fiscal year 2013. The most significant impact will be seen in the Army's inability to resource the fiscal year 2017 NDAA end-strength increases. Returning to BCA funding levels will once again force the Army to reduce its combat units in capacity and capability and start an inevitable decline toward a hollow force.

Admiral MORAN. A return to sequestration levels in fiscal year 2018 and beyond would require changes to the defense strategy, which would then dictate the specific priorities, impacts, and reductions. Sequestration level funding would prevent our ability to significantly recover readiness or grow force structure, despite the increasingly complex and dynamic security environment. The Navy would likely struggle to support ship and air operations and maintenance, training, and shore infrastructure sustainment and modernization. The hard choices required for cuts to readiness, capability and capacity would result in a Navy that cannot support our current national strategies.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. Air Force readiness remains at historic lows, driven by 26 years of continuous combat operations and the impacts of sequestration. If sequestration returns in fiscal year (FY) 2018, it would have many of the same devastating effects that occurred in fiscal year 2013. Impacts to readiness and future modernization cannot be avoided, because those are the accounts we can dial down quickly. Actions required to pay the estimated sequestration bill include:

- Reversing readiness recovery
 - o Flying hours reduced (e.g. \$1 billion redux = -2 months of flying)

- o Depot Maintenance deferrals ... increases bow-wave, reduces aircraft availability/readiness for war effort and peacetime training
- o Combat Air Forces training exercises minimized ... fewer pilots ready for full spectrum fight
- o Take risk in munitions such as Joint Direct Attack Munitions, Small Diameter Bombs, and Hellfire missiles (e.g. \$1 billion = -50 percent reduction) ... all used in current fight ... current production max'd to keep up with demand
- o Infrastructure risks ... mission bed-downs and training delays, base operating support to minimum levels (e.g. example \$1 billion = -43 percent of Facilities, Sustainment, Restoration, and Modernization and -70 percent of Military Construction budget)
- Modernization Delays
 - o Adjust F-35 buy (e.g. \$1 billion = -10 F-35s)
 - o Defer 4th/5th Gen Modifications ... F-16s, F-15Cs, F-22s
 - o Defer B-21, Long Range Standoff Weapon, Ground-Based Strategic Deterrent, MC-130s, Joint Surveillance And Target Attack Radar System recap
 - o Defer Presidential Aircraft Recapitalization
 - o Reduce investment in Science & Technology
- People
 - o Cap military end strength at current levels ... maintenance, nuclear, cyber shortfalls will remain, delaying readiness recovery
 - o Civilian hiring freezes ... critical skills left unfilled
- Potential force structure reductions
 - o A-10, U-2, KC-10, RQ4s, C-130Hs, EC-130s

Living with less than planned budget levels has resulted in the Air Force being the smallest, oldest, and least ready in history. BCA level funding has devastating effects on our capability, capacity, and readiness.

JOINT SURVEILLANCE TARGET ATTACK RADAR SYSTEM (JSTARS) AS AN EXAMPLE OF
READINESS CAPABILITY

36. Senator PURDUE. General Wilson, you stated in your written testimony that JSTARS capabilities are, “essential to finding and tracking our adversaries, conducting non-kinetic targeting, and ensuring Air Force weapons systems and cyber mission assurance.” However, the current fleet of JSTARS has been suffering from some serious delays in depot maintenance. Right now, there are seven aircraft in the Northrop Grumman Lake Charles, Louisiana facility and one aircraft in depot status in Warner Robins. That’s half the fleet. I’m also concerned that the “service life extension plan” (SLEP) will increase the cost and complexity of maintaining the aging legacy fleet, as opposed to bringing the recapped fleet online sooner. Can you speak to the readiness issues caused by unforeseen delays in depot maintenance at the Lake Charles facility?

General WILSON. The Air Force has no plans to SLEP the Legacy JSTARS fleet. Although the Air Force is working with Northrop Grumman to address delays at the Lake Charles Maintenance and Modification Center, sustainment costs for the Legacy fleet continue to grow at an unacceptable rate. This is one of the key reasons the Department chose to recap the capability despite significant funding constraints. Given the funding constraints of the Budget Control Act, the Department must accept and work to mitigate a capacity gap as we continue to fully support JSTARS Recap. The Air Force is working with our industry partners to see if the Department can extend the service life of a portion of the JSTARS fleet within the current programmed funding, to reduce the gap between the divestiture of the Legacy platform and Initial Operational Capability of Recap.

37. Senator PURDUE. General Wilson, for the record, will there be a capability gap between divestiture of the current fleet and acquisition of the new JSTARS? What does that gap mean for Air Force capabilities and combatant commander demands?

General WILSON. The Air Force is sensitive to the critical role JSTARS fills for combatant commanders and recognizes the demand for this capability will likely not decline. Unfortunately, there will likely be a capability gap as we retire legacy E-8C JSTARS. However, the solicitation for the JSTARS Recap contains incentives for contractors to accelerate fielding of JSTARS Recap to minimize this potential gap.

There is no single Department of Defense (DOD) aircraft that can fuse Battle Management Command and Control (BMC2) with Ground Moving Target Indicator

(GMTI) capability like JSTARS, but there are DOD assets that can act to partially mitigate the potential capability gap. Therefore, this potential gap means that the Department and combatant commanders will need to look across the DOD for a mix of assets to partially mitigate shortfalls until the new JSTARS becomes available for taskings.

MARINE AVIATION AND MV-22 OSPREYS

38. Senator PURDUE. General Walters, you mentioned in your written testimony that you recently reduced the number of MV-22 ospreys (and their aerial refueling aircraft, the KC-130J) assigned to your special purpose Marine air ground task forces (SPMAGTF) to improve the operational tempo and allow time for training and maintenance. Last April, I visited with one of your MAGTFs in Moron, Spain, and gained an appreciation for the importance of this mission, especially as it relates to crisis operations and embassy emergency response in Africa. Can you speak to how this move has diminished Marine readiness in that regard? What do you need to restore this readiness?

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

NAVY AVIATION READINESS

39. Senator PURDUE. Admiral Moran, an article recently published in Defense News stated that nearly 2/3 of the Navy's strike fighters (F/A-18 Hornets and Super Hornets) can't fly because they're either undergoing maintenance or are waiting for parts or their turn in the Navy aviation depot backlog. What mitigation efforts are in the works to address your \$1.7 billion readiness shortfall? When will those efforts be put in place?

Admiral MORAN. The Navy is attacking the readiness shortfall by working to improve supply, engineering and maintenance planning. Additionally, the Navy is leveraging lessons learned from legacy Hornet as we modify our Super Hornet sustainment plans. As a result of the high number of F/A-18 Hornets and Super Hornets in an Out-of-Reporting (OOR) status, the Department of the Navy initiated broad measures to pull together key stakeholders from across the Naval Aviation Enterprise, including Naval Supply Systems Command (NAVSUP) and the Defense Logistics Agency (DLA), to identify and mitigate constraints and to manage readiness challenges. The focus remains on identifying and removing constraints to the production, engineering and material fronts at organic and commercial depots, as well as squadron flight lines, which are each key to the ability to return OOR aircraft back to in-reporting status. Additionally, the Navy has developed a new comprehensive end-of-life management strategy for the F/A-18 A-D which includes creating streamlined, consolidated depot events at major flight-hour milestones, as well as Strategic Individual Aircraft Reviews used to identify priority high-capability lot aircraft that are candidates for retention until planned sundown. The Navy is proactively implementing Service Life Extension Program (SLEP) modifications during depot level maintenance. This involves replacing targeted structural components within the aircraft, reducing the need for future periodic inspections and unplanned structural In-Service-Repairs (ISR). In the meantime, the Navy has engaged commercial Contractor Field Teams (CFT) to help reduce completion time for one-of-a-kind repairs as they arise. For legacy Hornets, in-reporting inventory is also impacted by significant supply and squadron-level maintenance challenges. Much of the squadron maintenance burden is associated with the demands of operating aircraft well past their original design service life of 6,000 hours, with many aircraft currently beyond 8,000 hours and with the intent to extend life up to 10,000 hours. The end-of-life management strategy aims to reduce squadron level maintenance burden by aligning and reducing flightline maintenance tasks for the last two thousand hours of the aircraft's life. Naval Air Systems Command (NAVAIR) Logistics is simultaneously conducting an in-depth analysis of legacy Hornet squadrons to understand and remove additional constraints to readiness. The F/A-18 contains many "fly-to-failure" components and operates in highly corrosive salt-water environment. As a result, maintenance requirements become increasingly complex and unpredictable the further the aircraft extends beyond its original design life. The NAVAIR analysis effort is intended to assess levels of manpower, training effectiveness, support equipment availability, and adherence to maintenance procedures. The Navy is applying the lessons learned from the legacy Hornet while preparing to extend the service life of the Super Hornet fleet. Like the Hornet, the Super Hornet was originally designed with a service life of 6,000 hours. Compared to the legacy Hornet, the need for a service life extension was funded earlier in the program's life, providing greater opportunity to mitigate future impact. As the areas of the aircraft

requiring attention are finalized, the program is developing full Service Life Extension kits to proactively repair or replace life-limited components in every F/A-18E/F retained past 6,000 hours. As with the legacy Hornet, the plan is to replace key structural components during planned depot level maintenance with new metal, greatly reducing the need for follow-on inspections and the likelihood of future unpredictable, custom repairs. Making the Super Hornet SLEP kits available significantly earlier in the service life extension process will prevent many of the challenges the Navy has experienced with the legacy Hornet Extension program. Finally, there have been supply challenges in the Super Hornet and Growler fleet with specific aircraft components. In the short term, these issues are being addressed on a case-by-case basis with coordination between the fleet, NAVSUP, DLA and program management. As work to reduce component shortfalls continues, the Navy is simultaneously optimizing the maintenance strategy to ensure parts are repaired at the most efficient level via organic intermediate and depot facilities, the original manufacturer, other commercial maintenance facilities, or by the outright purchase of replacement parts. In the long term, the Navy is increasing the forecasting capability to better predict and compensate for component shortfalls before they become critical.

40. Senator PURDUE. Admiral Moran, would it be useful to open up Air Force depots to Navy aircraft maintenance, to help relieve the depot backlog?

Admiral MORAN. There is no need to utilize Air Force Depots, as they would face the same degraded aircraft material condition which results in increased demand for parts, engineering analysis and logistics support. In an effort to augment depot production, the Department of the Navy has partnered with Boeing and L3 Corporation to stand up additional maintenance facilities to target F/A-18 Legacy High Flight Hour inspections and repairs outside current Navy Organic Depot Facilities. Naval Aviation Depots have sufficient capacity to handle the remainder of the F/A-18 A-D workload through the FYDP and will continue to implement productivity and internal process improvements to accelerate throughput. The Naval Aviation Enterprise (NAE) has also invested in Material Readiness Teams and corrosion training at the squadron level to improve material condition. Better fleet corrosion control/preservation procedures will reduce the man-hours depot artisans must allocate for corrosion related repairs and further improve depot turn-around time.

READINESS IN SPACE

41. Senator PURDUE. General Wilson, you said in your testimony that, "In the not too distant future, our potential adversaries will have the capability to hold all of our military space capabilities at risk." Can you speak to what needs to be done to regain competitive advantage in space? What are the current space readiness issues you're dealing with?

General WILSON. Our priority is to ensure the Air Force continues to provide resilient space effects to all warfighters and to ensure we are fully prepared to fight and win a conflict that extends into space. To do this, we are adjusting how we organize, train, and equip through the Space Mission Force (SMF) and Space Enterprise Vision (SEV). The SMF is emphasizing advanced training of our space operators while also giving them time to develop new tactics, techniques, and procedures (TTP) to protect our assets and mitigate adversary actions. This training and these TTPs will also drive the discussion of the rules of engagement and authority structure required to operate in a contested space environment. The SEV lays out a roadmap of future systems and capabilities that will provide a space force that is resilient to attack. We are also working to ensure that acquisition authorities are held at the appropriate levels to ensure we can acquire appropriately resilient systems while limiting unnecessary duplication of effort. Finally, we have started national-level policy discussions to determine the messages we want to send to our allies and adversaries and to advance policies that allow tactical commanders the ability to operate in a real-time "battlefield" environment.

ARMY READINESS

42. Senator PURDUE. General Allyn, you stated that only one-third of your Brigade Combat Teams, one fourth of your Combat Aviation Brigades, and half of your Division Headquarters are deemed ready. Further, you said that only three of your BCTs could be called upon to "fight tonight." I find this very alarming, especially as we see near-peer adversaries, like Russia and China, flexing their muscles. Is three BCTs ready to "fight tonight" a historic low?

General ALLYN. Although our Army is close to achieving its goals for C1/C2 BCTs, the definition of ready forces used by the Joint Staff, I feel strongly that to make

readiness more robust and to be responsive to combatant command crisis-response, we must have more BCTs that are ready for immediate commitment. Therefore, the Army is taking actions to increase the number of C1 (fully ready) BCTs from 3 today to 6 by fiscal year 2018, if fiscal year 2017 requested funds are appropriated.

43. Senator PURDUE. General Allyn, if you were to see a large funding boost under this administration, what would it take for you to buy back readiness of the current Army force structure?

General ALLYN. The Army's top priority remains its warfighting readiness. If provided additional funding, the Army would apply the funds to accounts directly contributing to warfighting readiness: starting with our new recruits arriving thanks to the NDAA authorized increased end strength, ground and air operations, operations supporting home station training, and maintenance funding. Training readiness in home station and rotational forces remains a priority concern for the Army. Should Congress authorize and appropriate additional operations and maintenance funding, the Army would continue to rebuild readiness levels by investing in training readiness for both home station training and rotational forces supporting Korea, the Middle-East, and Europe. The Army would continue to fund Combat Training Center modernization, Emergency Deployment Readiness Exercises, and facilitate our depots and ammunition plants to enable increased equipment readiness and munition war stocks. If given more funding for institutional training, the Army would use it for initial military training, aviation training, and professional military education.

44. Senator PURDUE. General Allyn, you've also said that the Army risks consuming readiness as soon as you build it. Can you elaborate on the risk of immediately consuming readiness? How can we dig ourselves out of this hole?

General ALLYN. Units deployed in support of Non-Decisive Action operations, such as Operation Inherent Resolve (OIR) and Operation Freedom's Sentinel (OFS), where we perform primarily train, advise, and assist missions, are not increasing readiness while deployed. Additionally, units disaggregated due to restricted force manning levels or performing missions with ad hoc formations immediately degrade unit readiness upon deployment. Additionally, when combatant command force demands emerge unexpectedly, as they have already this year in support of OFS and OIR, the Army deploys ready forces that were expected to provide increased surge capacity for potential contingencies. The Army must be prepared to fight existential adversaries capable of high-end conventional warfare with trained and ready forces. Currently, the Army can only accomplish the requirements specified in the Defense Planning Guidance (DPG) at high military risk due to insufficient ready forces to meet multiple contingencies simultaneously. To improve readiness and lower risk based on the current challenges of sourcing demands, the Army needs to grow force structure, increase Army National Guard and United States Army Reserve integration and readiness, and continue to build Decisive Action proficiency. To do this, sustained, long-term, and predictable funding is essential.

DEPOTS AND CIVILIAN HIRING FREEZE

45. Senator PURDUE. General Allyn, Admiral Moran, General Walters, General Wilson, in the state of Georgia, we have two bases doing important maintenance and depot work—at Robins Air Force Base and also at the Marine Corps Logistics Base in Albany. I've been hearing a lot of concerns about how the civilian workforce freeze is impacting their ability to hire and get the job done—something that will ultimately impact military readiness if not resolved quickly. I'm concerned we'll start to see PDM (programmed depot maintenance) timelines shift to the right. I understand that Deputy Secretary Work issued guidance last week on how DOD will implement the civilian hiring freeze. Can you let us know when we can expect guidance from DOD for the base-level on the workforce?

General ALLYN. In accordance with guidance released by the Deputy Secretary of Defense on 1 February 2017, OSD allows for exemptions to be granted that are deemed critical in certain areas. Positions in depots in which incumbents perform direct management of inventory and direct maintenance of equipment are specified as meeting this criteria. Depots and arsenals are a critical part of the core industrial base of the nation and essential to Army combat readiness and the Acting Secretary of the Army has been very proactive in ensuring this remains our number one priority.

Admiral MORAN. In accordance with guidance released by the Deputy Secretary of Defense on 1 February 2017, OSD allows for exemptions to be granted that are deemed critical in certain areas. Positions in depots in which incumbents perform

direct management of inventory and direct maintenance of equipment are specified as meeting this criteria. Depots and arsenals are a critical part of the core industrial base of the nation and essential to Army combat readiness and the Acting Secretary of the Army has been very proactive in ensuring this remains our number one priority.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. The DepSecDef “Implementation of Civilian Workforce Hiring Freeze” (Feb 1, 2017) and OUSD “Implementation of Civilian Workforce Hiring Freeze—Change 1” (Feb 17, 2017) Memorandums provide implementation guidance for an across-the-board hiring freeze directed by the President on January 23, 2017. The freeze impacts both appropriated fund and non-appropriated fund positions across all Air Force Major Commands and Installations. Except for certain actions (e.g., internal career ladder promotions and Pathways intern appointments), all functions, to include depot maintenance, require exemption approval of the Secretary of the Air Force. Updated DOD guidance (Change 2) is forthcoming, providing updated Section A functions and further delegation of authority for Section C exemptions required by law.

QUESTIONS SUBMITTED BY SENATOR TIM KAINE

RESTORING READINESS

46. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, what readiness-related accounts are you currently executing at maximum capacity, and if you were given more funding today, what would be the top near-term priorities in which you would invest to restore full spectrum readiness as soon as possible?

General ALLYN. The Army’s top priority remains its warfighting readiness. If provided additional funding, the Army would apply the funds to accounts directly contributing to warfighting readiness: starting with our new recruits arriving thanks to the NDAA authorized increased end strength, Ground/Air OPTEMPO, Land Forces Operations Support (supporting home station training), and Maintenance funding. These accounts are also executing at maximum capacity under current funding. The second priority is rebuilding Total Force capacity to make the Army a decisive conventional force—with additional funding we will buy back combat power in our Brigade Combat Teams. Should Congress authorize and appropriate additional Operations and Maintenance funding, the Army’s top near term priorities are to continue rebuilding readiness levels by investing in training readiness both in home station training and through our rotational forces supporting Korea, the Middle East, and Europe, through Combat Training Center modernization, through Emergency Deployment Readiness Exercises, and through additional maintenance.

Admiral MORAN. Due to the Bipartisan Budget Act, the Navy was compelled to fund afloat and shore readiness accounts below requirement and maximum capacity in our fiscal year 2017 President’s Budget (PB–17) submission. In addition, emergent needs and execution since President’s Budget 2017 submission has resulted in a critical fiscal year 2017 afloat readiness shortfall of \$1.7 billion. If more funding were available today, our top near-term priorities to restore readiness would include ship maintenance, ship operations, air operations, and information warfare and other operations. Funding these accounts would address immediate operational and maintenance requirements and restore near-term warfighting readiness. In addition, our shore infrastructure has become severely degraded and is getting worse because it has been a repeated bill payer for other readiness accounts in an effort to maintain afloat readiness. Consequently, we continue to carry a substantial backlog of facilities maintenance and replacement, approaching \$8 billion.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. Air Force readiness is currently handicapped in 5-key readiness elements: the availability of trained and experienced airmen in critical positions; predictable baseline funding which currently utilizes leveraged overseas contingency operations funding to meet enduring weapon system sustainment requirements; reliance on outdated and limited training resources; training flying hours set at executable level but below minimum requirements; and a sustained operational tempo that consumes readiness at a rate faster than it can be replaced. Congress can help now: 1) Support end-strength increase, 2) Support on-going recapitalization efforts to replace aging fleets and right-size high-demand capabilities, 3) Permanent relief from Budget Control Act funding levels. The erosion of our full-spectrum combat readiness started well before sequestration, but has been exacerbated by it.

47. Senator Kaine. General Allyn, Admiral Moran, General Walters, General Wilson, please quantify what your current readiness backlogs are for training, depot maintenance, FSRM, and MILCON, and if you received more funding how much more could you execute within a fiscal year?

General ALLYN. The Army estimates existing readiness backlogs in the following categories: Training—\$589 million Training readiness in home station and rotational forces remains a priority concern for the Army. The Army continues to assess its training needs to support both enduring and emerging missions, and recognizes the potential for unforeseen shortfalls throughout the remainder of the fiscal year. Depot Maintenance—The Army's deferred depot maintenance for fiscal year 2017 is: \$1,026 million. If we were to receive additional funding by mid-April 2017, the Army could execute \$143.7 million of that workload by the end of fiscal year 2017 and arrest the degradation of Army readiness. Specifically, we could overhaul missiles and missile test kits in support of an Air Defense Artillery battalion, we could affect post-production software updates across a wide range of systems and networks to improve cybersecurity and interoperability of the systems, we could overhaul nearly 6,000 pieces of support equipment and the M109A6 howitzers and M992 ammunition carriers to support nearly three armored brigade combat teams. Facilities Sustainment—the Army has a \$10.8 billion restoration and maintenance backlog and has identified \$335.9 million in projects ready to execute in fiscal year 2017. The Army continues to address and document the state of facilities and evaluate restoration and modernization requirements. Should the Army receive funding appropriated for FSRM in excess of the amount cited above, the Army is prepared to identify and accelerate additional shovel-ready projects through September. MILCON—the MILCON deficit is \$38 billion. The Army estimates an annual funding requirement of \$3.3 billion to recapitalize, restore, modernize, and support Army readiness.

Admiral MORAN. The Department of Defense has just released the fiscal year 2017 Request for Additional Appropriations (RAA), which requests funding in addition to our fiscal year 2017 President's Budget (PB-17) to address current year readiness shortfalls. The RAA includes items that are executable in fiscal year 2017 that would address immediate operational and maintenance requirements and improve warfighting readiness, including depot maintenance, training, FSRM and MILCON. Quantifying backlogs in training and depot maintenance is challenging because in addition to quantifying the deferred maintenance needs through condition inspections, the backlog is impacted by Fleet requirements that change based on warfighting needs, operational tempo, and rotations in personnel. Over time, some backlogs cannot be recovered as maintenance or training is not received when needed. Emergent needs and larger-than-projected work packages for our shipyards and air depots also create fluctuations in the total backlog. This then has forced us to remove ships and aircraft from service for extended periods, which in turn increases the tempo for the rest of the fleet, which causes the fleets to utilize their ships and airframes at higher-than-projected rates, which increases the maintenance work, which adds to the backlog, and so on. The cyclical nature of the backlogs makes it difficult to quantify. Currently, the Navy estimates our FSRM backlog as approaching \$8 billion based on our identified requirements. However, that backlog grows to over \$40 billion under the assumption of improving restoration of all facilities to a condition index of 100 (the maximum), as indicated in the fiscal year 2015 Financial Report. In developing the fiscal year 2017 RAA, the Department focused primarily on addressing near-term warfighting needs and on those efforts that could be responsibly executed within this fiscal year. The Navy's fiscal year 2017 RAA includes \$171 million for FSRM projects focused on warfighting readiness support, \$50 million in MILCON for planning and design, and \$21 million to offset cost growth and complete previously authorized MILCON projects. Although the Navy has additional FSRM projects that are executable in fiscal year 2017, they do not represent the Secretary of Defense's highest priorities for fiscal year 2017. The Navy plans to consider these projects in our future budget submissions. The Navy is currently working with the new Administration to determine defense priorities and requirements for fiscal year 2018 and the Future Years Defense Program, and is also currently working with the Office of the Secretary of Defense on an in-depth readiness review. fiscal year 2018 funding requirements and executability are partially dependent on the final disposition of the fiscal year 2017 budget. The details of the fiscal year 2018 President's Budget will be released to Congress in the next few months.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON.

Training Backlog:

- \$10.1 million in essential requirements necessary to support Air Force end-strength growth from 317,000 to 321,000:
 - o Funds tech training requirements including: Basic Military Training (BMT) supplies and equipment necessary to support an increase in accessions (031B – 84711F); technical training requirements, Advanced Distributed Learning Service (ADLS), and temporary duty to school to ensure technical courses have the required materials for course completion and expansion to handle additional trainees as the Air Force grows.
- \$112 million in requirements to bridge the gap in both fighter and Remotely Piloted Aircraft (RPA) pilot shortfalls:
 - o +\$3.0 million funds F-35 contract maintenance training instructors required to train F-35 crew chief, avionics, and armament initial accessions training requirements. This is necessary to train 340 airmen to maintain the F-35 Fleet. (032D-89731F).
 - o +\$17.9 million funds Introductory Flight Training support contract (IFT), required for all new pilot candidates to enter Undergraduate Pilot Training (UPT) or (RPA) training. Impacts 986 undergraduate pilots and 154 RPA pilots training necessary to reach critical pilot production levels to achieve readiness levels. (032B-84748F).
 - o +\$65.0 million funds F-16C/D Fighter Training Unit (FTU) squadron bed-down for additional 31 F-16s at Holloman Air Force Base, New Mexico. Includes 1-year maintenance contract plus costs necessary to run the unit. Additional fighters increase the ability for the FTUs to generate more warfighters. (011D-27597F).
 - o +\$20.25 million for fighter squadron contract admin support. Provides ability to increase mission and readiness focus as fighter pilot manning in operational squadrons drops below 95 percent. Total Requirement: \$4 million to United States Air Forces in Europe (USAFE) PE 27603F; \$6.25 million to Pacific Air Forces (PACAF); \$8 million to test/weapons instructor course/Air Education and Training Command (AETC).
 - o +\$6.0 million for adversary air funding. Provides adversary training for 4th/5th gen forces. Contract adversary air allows fighter pilots to return to the line and focus on full spectrum readiness training and allows an increase in pilot production/upgrades.

Depot Maintenance Backlog: Depot maintenance backlog is defined as those aircraft deferred from entering depot maintenance for either a Programmed Depot Maintenance (PDM) or a planned major modification. Currently, only three weapon systems reflecting 40 PDM or programmed major modifications inputs are considered backlogged: A-10, F-22 and TH-1H.

A-10: The cost to complete A-10 backlog is approximately \$70 million. This is an unfunded requirement and should depot capacity become available, the program office would use out-of-cycle requests to fund inductions falling in or near the year of execution. Estimated time for total backlog to be completed is at least four to five years, likely longer based on depot capacity.

F-22: F-22 currently has 13 aircraft backlogged (4 Structural Repair Program II & 9 Inlet Coating Repair (ICR)) for fiscal year 2017. This backlog is expected to grow to 17 aircraft by the end of fiscal year 2018. Cost to complete F-22 backlog is ~\$40 million (touch labor + Contract Logistics Support (CLS) support costs). Estimated time for total F-22 backlog to be completed is by the third quarter of fiscal year 2019, if the user, Air Combat Command (ACC), continues funding the ICR speedline service through fiscal year 2019.

TH-1H: Seven of 28 PDM aircraft are backlogged. All are at home station. No additional funding required to complete backlog. Backlog will be complete by fiscal year 2019 with an estimated three to four backlogged aircraft completed per year.

Infrastructure Backlog FSRM and MILCON: The backlog in FSRM and recap MILCON has grown beyond \$25 billion, which includes facilities and infrastructure maintenance, repair, and recapitalization requirements. An additional \$1 billion per year investment in infrastructure will arrest the current decline.

Increasing FSRM funds would have a direct tangible impact on readiness, ensuring the Air Force's network of globally positioned bases are fully capable of projecting airpower and maintaining our trans-regional access.

Based on where we are today in the fiscal year, the Air Force can execute over \$800 million in FSRM and facility operations, as well as \$500 million in MILCON over and above what has already been requested in the fiscal year 2017 President's

base budget. This does not define our overall annual execution capacity, but is primarily driven by the timely receipt of funds with respect to the fiscal calendar and time limits associated with individual appropriations.

48. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, what specifically would a fully-funded whole “ready” force look like, and how much time would it take to achieve?

General ALLYN. A fully-funded, whole and ready Army is organized, manned, equipped, and trained to the levels necessary to fight as prescribed in the National Military Strategy. In order to achieve a ready force, the Army must improve home station training; add Combat Training Center (CTC) rotations; increase manning levels; increase professional military education; increase training support systems; modernize ranges (including cyberspace ranges), simulation centers, and virtual training centers; and increase constructive training. With the right resources and force structure, the Army could achieve a fully-funded and ready force by fiscal year 2023. This time frame allows unit leaders to experience vital training and readiness repetitions during multiple CTC rotations and joint deployment exercises at various levels of command.

Admiral MORAN. A fully-funded whole ready force would include sufficient funding to meet Fleet requirements for today’s Navy, in addition to investing in the readiness, capability and capacity needed for the future Navy. A whole force would have sufficient funding to take care of our Navy Team, recover current readiness shortfalls, maintain the ships and aircraft we have today, and build a larger and more capable Navy the nation needs. Specifically, some key elements of this force would include fully funding current fiscal year 2017 shortfalls in ship maintenance, ship operations, air operations, and information warfare and other operations. Healthy ship and air depot maintenance requires continued hiring and training of skilled workforces to maintain our ships and aircraft. Healthy aviation readiness would also require restoral of stocks of necessary parts and spares, and procurement of additional F/A–18E/F aircraft to mitigate the near-term strike fighter shortfalls and provide more aircraft to allow our pilots to fly the hours they need to maintain proficiency. Restoral of Permanent Change of Station moves would improve the readiness of our people. Shore infrastructure, which is critical to our ability to support deploying forces over the long term, has become severely degraded and would require almost \$8 billion to recover the backlog in facilities sustainment, restoration, and modernization. At the same time, we cannot restore the fleet to full health without also updating our platforms and weapons to better address current and future threats, and evaluating the right size of the Navy so that it can sustain the tempo of operations that has become the norm. The Navy is actively working on plans for the future fleet with Secretary Mattis and his team, and we look forward to discussing those plans with you when they are approved. The time needed to achieve a whole ready force is dependent upon not only sufficient funding, but also on stable and predictable funding. The longer the Navy receives stable, predictable full funding, the faster and more efficiently the Navy would be able to achieve a whole ready force.

General WALTERS. The 2016 National Military Strategy describes readiness as the ability of the Joint Force to respond to a contingency while maintaining flexibility and resiliency. It further describes comprehensive readiness as the assessed ability to meet the warfighting requirements today and in the future against the five priority challenges and unanticipated contingencies. With that context, a fully “ready” Marine Corps requires the ability to generate forces in sufficient capacity and with operationally relevant capabilities against a near-peer adversary in support of the national strategy of Defeat/Deny. As an element of the Joint Force, the Marine Corps provides forces that are naval, expeditionary, agile and lethal in nature. The 21st Century MAGTF is capable of successfully competing against an adversary in all warfighting functions and across all five domains of land, sea, air, space, and cyberspace. Institutional readiness in the Marine Corps depends upon the proper balance between the five readiness pillars: High Quality People, Unit Readiness, Capability & Capacity to Meet Combatant Commander Requirements, Modernization; and Infrastructure Sustainment. Readiness improvement is constrained by inconsistent and insufficient funding to support the five pillars. The Marine Corps is working with DOD to establish service goals and timeframes to reconstitute readiness to execute the 2016 National Military Strategy, but a stable fiscal planning horizon is a prerequisite for success. With sufficient resources, this level of readiness could be achieved no earlier than the end of FY2022.

General WILSON. Today, we remain the finest Air Force in the world. However, our relative advantage over potential adversaries is closing rapidly and in some cases it has closed. We must be prepared to win decisively, and that means we must

ensure America's airmen are resourced and trained to fight alongside the Army, Navy, Marines, and Coast Guard—the joint military team—to meet national security obligations.

The USAF readiness recovery strategy focuses on disciplined, synchronized investment in readiness accounts in sequential order. The first priority is our longest-lead process, Active Duty end strength—up to 321,000 by the end of 2017—and eventually 350,000 over the next five-seven years with commensurate growth in the Guard and Reserve. Next, investment in the training and sustainment enterprises, both of which require three to five years of lead time due to industrial and human processes. Finally, as global rotational demands permit, we will be ready to increase flying hour funding to facilitate more robust home-station training activities. In short, each readiness 'lever' must be engaged at the proper time and in coordination with the other levers.

FEDERAL HIRING FREEZE

49. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, last week, Deputy Secretary of Defense Bob Work issued implementation guidance on the civilian workforce hiring freeze directed by the president. The guidance authorized exemptions for "positions in shipyards and depots" that "perform direct management of inventory and direct maintenance of equipment." What types of workers and mission functions are still excluded?

General ALLYN. In accordance with guidance released by the Deputy Secretary of Defense on 1 February 2017, OSD allows for exemptions to be granted that are deemed critical in certain areas. Section A of the guidance specified 16 categories of personnel whose functions were determined by the Secretary of Defense to be necessary to meet national security or public safety responsibilities. Examples of these positions are those directly supporting the execution of contingency missions and operations, cybersecurity or cyberspace operations, space operations or planning, medical positions, first responder firefighter and law enforcement positions, child care workers, positions providing direct support to the prevention of child abuse, sexual assault, domestic violence, and suicide nuclear reactor and nuclear weapon safety personnel, mortuary affairs, positions required to be filled by foreign nationals, positions funded by foreign military sales and civilian mariners. On 7 March 2017, a 17th category was added to this section which covered essential military installation and base operating services, infrastructure sustainment, and family readiness programs including Morale, Welfare, and recreation activities and any other positions paid with non-appropriated funds. If a Command determines they have a position that is not specifically exempted from the hiring freeze but it is deemed critical to mission readiness, they must submit an exemption request with written justification detailing the criticality of the requested position for approval by the Acting Secretary of the Army.

Admiral MORAN. Although there is a defined exemption for Shipyards and Depots in the DOD Guidance on the Hiring Freeze, there is also a strict requirement that positions be considered individually by the Secretary of the Navy. Therefore, Budget Submitting Office Commanders (BSO) (Flag Officer/General Officer or Senior Executive Service members) are responsible for certifying compliance with the DOD guidance and must exercise careful scrutiny to hold true to the criteria in the guidance for all positions. Positions which support the Shipyards and Depots can be filled if the BSO Commander certifies that the position meets an exemption category and the SECNAV approves.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. In keeping in line with the President's memorandum and Department of Defense guidance, the Air Force has identified certain functions necessary to meet national security or public safety responsibilities that cannot afford to be impacted by the temporary hiring limitations. For all other exemption categories, the hiring freeze extends to all civilian vacancies regardless of mission, position type, or funding source to include non-appropriated fund positions. This creates significant challenges to the Air Force, as these positions directly deliver combat power for depot-level maintenance, supply chain management, and the associated acquisition management programs which are essential to our ability to support the warfighter.

50. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, if every year you are losing depot workers to retirement and attrition, how are you going to be able to increase readiness if you need more funding and end strength, yet are unable to hire more civilians to work?

General ALLYN. The Army plans to use the exemption authority for depot positions performing direct management of inventory and direct maintenance of equipment. In accordance with guidance released by the Deputy Secretary of Defense on 1 February 2017, OSD allows for exemptions to be granted that are deemed critical in certain areas. Positions in depots in which incumbents perform direct management of inventory and direct maintenance of equipment are specified as meeting this criteria. Depots and arsenals are a critical part of the core industrial base of the nation and essential to Army combat readiness and the Acting Secretary of the Army has been very proactive in ensuring this remains our number one priority. Any worker at these types of installations deemed critical to the mission function by its commander are recommended for exemption to the Acting Secretary of the Army.

Admiral MORAN. As functions necessary to meet National Security or Public Safety responsibilities, the Secretary of Defense has delegated authority to the Secretary of the Navy, and other service secretaries, to exempt positions that perform direct labor/maintenance and inventory management functions in shipyards and depots from the hiring freeze. Furthermore, the Secretary has established a framework for Service Secretaries to provide individual exemptions for those positions that are critical to defense operations. Therefore, the Department of the Navy (DON) has executed a rapid response plan to enable Commands to seek exemptions in accordance with the Department of Defense guidance. The DON plan ensures integrity of decisions and streamlines processes to the maximum extent practicable in support of the priority work of our Department and its missions. Navy is aggressively pursuing exemptions to minimize long term readiness impacts, while evaluating the size and makeup of the Service's civilian workforce, including those at the shipyards and depots, pursuant to the Presidential Memorandum.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. Our civilian airmen play a critical role in our ability to supply warfighters with the weapon systems needed for today's and tomorrow's fights. As you mention, it is instructive to consider the Air Force Sustainment Center and our depots, where approximately 88 percent of their workforce are civilians who directly deliver combat power for America through depot-level maintenance, supply chain management, and power projection for legacy and 5th generation weapon systems. It is also worth noting our depots' attrition rate results in over 200 civilians departing on a monthly basis.

The depots have a mature and deliberate strategic workforce planning process that takes into consideration programmed dollars, training curves, forecasting of recruiting needs and analysis of the current workforce. Through this methodology, the depots plan and target graduating students and other skilled workers to replenish the workforce, as well as identify the need to offer incentives and/or other forms of marketing strategies.

Fortunately, OSD's guidance provides a means to approve exemptions to the hiring freeze, based on impact to national defense and public safety. Along those lines, we've worked hard to establish a process to conduct a thorough, yet expedient, review of potential hiring freeze exemptions, while meeting the spirit and intent of the Presidential Memo. We've streamlined our exemption review process as any associated hiring delays for critical positions at the depots will hamper our ability to execute this vital mission.

51. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, which readiness-related functions are at the most risk because of this hiring freeze?

General ALLYN. There are vacancies for civilian personnel who support training readiness at the installation and command level, including at ranges and live-fire facilities. These vacancies require approximately 300 soldiers to perform these tasks and functions daily as borrowed military manpower. As a result, these soldiers are unable to train with their units, reducing unit and individual readiness for combat. Commands are not able to hire against legitimate needs. If the hiring freeze continues, there is a high potential for reduced training participation throughout the remainder of the year.

Admiral MORAN. The Navy's readiness-related functions most at risk because of the hiring freeze are those not covered by Section A of the Secretary of Defense's implementation memorandum, but still critical to the production process at our shipyards, aviation depots, and intermediate level maintenance activities. These functions include human resources and training personnel required to bring on board new production workers exempted from the hiring freeze, and production support functions including contract management, engineering, finance, quality assur-

ance, and project management. The hiring freeze could also make it more difficult to attract and retain the future workforce across all skill sets, and slow replacement for losses through normal attrition. Recurring hiring freezes further reduce morale across the federal workforce and hinder our ability to recruit and retain highly-skilled employees as an employer of choice as we try to recover from previous years of budget uncertainty. The Department of the Navy has executed a rapid response plan which ensures the integrity of decisions and streamlines processes to the maximum extent in support of the priority work of our Department and its mission. The full impacts to readiness will depend on the ultimate length of the hiring freeze.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. The civilian hiring freeze will negatively impact Air Force in sortie generation, cyber operations, Nuclear Command, Control, and Communications, depot operations, and space operations. Men and women in uniform depend on the unwavering elite support and innovative contributions of dedicated and skilled civilian airmen—most civilians work as key enablers to operations across mission areas. They sustain critical infrastructure, manage major acquisition programs and emergency services, and deploy to support combatant commanders. Our civilian workforce is a major component of the best Air Force in the world.

From 2006 to 2011 the Air Force identified manpower reductions and recapitalized, modernized, and rebalanced the “total force” into a smaller, more lethal and agile force. In the past few years, Air Force Headquarters also reduced their manpower by 20 percent. Currently, there are 180,000 Air Force civilian positions worldwide, with 12,000 personnel actions in abeyance pending exemption.

ENERGY RESILIENCY

52. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, last month, the Air Force described an incident in the past (via open source media) in which a RPA mission based in the U.S. was flying a targeting mission overseas. Because of a routine maintenance power outage stateside, the RPA feed temporarily lost power and the target was able to get “away and is able to continue plotting against the U.S. and our allies.”

Improving energy resiliency on military installations and forward operating bases is a priority, which is why section 2805 of the fiscal year 2017 NDAA gave DOD new authority to program and purchase assets like secure microgrids and other technologies to improve energy resiliency against outages that are either weather-related or man-made like cyber-attacks. Understanding you can’t disclose fiscal year 2018 budget details yet, but to what extent, if any, have you used section 2805 to plan or program to improve energy resiliency in the fiscal year 2018 budget request? If not, why not?

General ALLYN. The Army’s approach to installation energy and water resilience is holistic. It includes reducing risk to critical missions, assured access to resource supply, improving infrastructure reliability and effectively operating utility systems. Identifying and addressing gaps in energy resilience is embedded across all of our energy programs. Army has two energy resilience projects planned, due to the change in the language in Section 2805 of the fiscal year 2017 NDAA.

Admiral MORAN. Section 2805 of the fiscal year 2017 NDAA amended section 2914(a) of title 10 to state: “The Secretary of Defense may carry out a military construction project for energy resiliency, energy security, or energy conservation, not previously authorized, using funds appropriated or otherwise made available for that purpose.” This amendment widened the aperture for considering energy conservation improvement program (ECIP) projects on the merits of energy resiliency and energy security in addition to energy conservation.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. While the Air Force has not utilized the authority provided under Section 2805 of the fiscal year 2017 NDAA yet, the Air Force is planning to incorporate this new military construction authority into future projects to address the Air Force’s more critical energy construction needs. That said, the Air Force is taking a holistic, enterprise-wide approach to ensuring critical missions and capabilities remain functional during long-term or widespread energy disruptions. This includes leveraging existing tools and using all the authorities provided by Congress to develop resilient energy demonstration projects, with a sustained focus on missions and installations. In fact, recent actions, such as the creation of the Office of Energy Assurance and its Resilient Energy Demonstration Initiative, demonstrate the Air Force’s desire to use all the authorities provided to it by Congress to enhance its energy assurance.

53. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, given Secretary Mattis' quote "unleash us from the tether of fuel" and his recent statements to SASC that combat units "face unacceptable limitations because of their dependence on fuel" and his desire to "push those limits further" because "our efforts to resupply the force with fuel made us vulnerable in ways that were exploited by the enemy", what specific steps are you taking to improve combat capabilities for the warfighter through operational energy improvements and to increase energy resiliency on installations and forward operating bases?

General ALLYN. The Army is delivering enhanced energy resiliency on select Army installations. Examples include micrgrids, redundant transmission lines, hardened sub-stations, advanced switching gear, battery storage, and one-site power generation, including renewable and alternative energy sources.

Admiral MORAN. The Navy has undertaken deliberate initiatives intended to increase combat capability through improved energy efficiency: Maritime: In order to achieve greater reach and longer time on station for the operational fleet, the Navy has implemented several improvements to reduce energy and maintenance costs including technologies such as: solid state lighting; stern flaps and hybrid electric drives for amphibious ships; combustion trim loop modification for steam ships; and automated cleaning of gas turbines while on line. Additionally, the Office of Naval Research (ONR) is developing new energy efficient power conversion technology; advanced high power control architectures; energy and power dense energy storage technologies; advanced energy efficient hull forms; and lightweight high strength materials for more fuel efficient and capable naval platforms. Aviation: In order to achieve enhanced combat capability through energy efficiency initiatives, Naval Aviation is expanding the use and enhancing the fidelity of flight simulators where appropriate (to reduce fuel use), promulgating best practices of SMART tanking and minimizing use of auxiliary power units (APUs) when appropriate, and developing efficiency modifications for the F-35 and F-18 engines to increase combat radius and reduce tanking requirements. ONR is separately conducting research into variable cycle advanced technology (VCAT), which would enable additional aircraft engine efficiencies for further increased combat radius and reduced tanking requirements. Expeditionary: ONR is supporting research to increase energy resiliency and decrease energy demands for forward-deployed and distributed forces. This effort includes recently completed research into advanced solid oxide fuel cells with increased efficiency to reduce expeditionary fuel demands. ONR is also leading important research into higher power, lightweight, and flexible solar cells, while optimizing our ability to utilize solar energy in expeditionary power systems. Additionally, ONR is researching advanced grid technologies to add efficiency, stability, and resilience to expeditionary power by integrating a variety of power generation sources (solar, military generators, or even locally scavenged equipment) available on the future battlefield. Future research will explore more efficient, ultra-compact, ultra-lightweight, and near maintenance free power generation sources in support of warfighters at the tactical edge. Installation Energy Resiliency: In order to increase energy resiliency on installations, Navy is reducing energy consumption in our facilities while improving our utility infrastructure. Navy is using utility condition assessments and mission analyses to prioritize funding for our most critical facilities. Navy is also building partnerships with the private sector, allowing the Navy to leverage third party financing to further improve installation energy resiliency. ONR is also conducting research to enhance the cyber-security and efficiency of power grids.

General WALTERS. The Marine Corps is improving combat capabilities by increasing efficiency of systems, improving the understanding of energy on the battlefield, and changing the energy related behavior of individual marines. For example, we recently transitioned fuel efficiency technologies developed by the Office of Naval Research's Fuel Efficient Medium Tactical Vehicle Replacement program to the Program Executive Office (Land Systems). This technology has the promise of improving the fuel mileage of the Marine Corps' most ubiquitous vehicle by 8-10 percent. The Marine Corps is also working with the Army to develop an energy metering and monitoring capability that will provide actionable information to commanders that will enable more efficient movement and usage of energy on the battlefield. In addition, we are inserting energy into the training and education programs ranging from driver training of Lance Corporals up through post graduate education for our officers. This holistic training and education plan will incorporate an energy ethos across the entire Marine Corps.

Marine Corps Installations have adopted a proactive approach towards improving their energy security posture by reducing dependence on external suppliers of vital energy resources through conservation, efficiency, and on-site generation. Assessments have been performed across all Installations to identify remedial actions to

mitigate unacceptable energy security risks. Micro-grid capabilities which provide the ability to control and distribute power are currently deployed aboard multiple installations (Miramar, Yuma, and 29 Palms) and will continue to be utilized when determined to be lifecycle cost effective or to provide flexibility and security to mitigate unacceptable risk.

General WILSON. The Air Force is working to unleash us from the tether of fuel and improve combat capabilities by emphasizing energy initiatives associated with flying operations and building installation energy resiliency at U.S., overseas, and forward operating bases. These include: long-term investments in advanced engines and aircraft designs; emphasizing flying operations fuel savings through more efficient mission planning (i.e., reducing “fuel carry” weight) and upgraded aircraft; upgrading range equipment; reducing engine idle times; optimizing demand; assuring supply; and improving resiliency of the installation energy that powers bases. This is accomplished through an improved understanding of mission-thread vulnerabilities. The Air Force is hardening critical nodes and diversifying energy sources which will provide sufficient and resilient, dedicated power and agile transmission systems capable of mitigating the risk of long-term damage to the electric power grid.

54. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, how, if at all, do you consider the maneuver and operational forces’ energy needs and vulnerabilities during training exercises, operational plans, and wargames (for energy needs and vulnerabilities, and risks at the tactical, operational, and strategic levels)?

General ALLYN. Army units are designed, equipped, and trained to rely on their own sources of power and are not dependent on external power sources. Army units deploy with power generation capabilities to training exercises, where they operate in a degraded environment. Energy needs and vulnerabilities, and realistic logistics challenges for maneuver and operational forces are a part of all operational planning and are fully exposed in all war games and training exercises.

Admiral MORAN. The Navy works with the Defense Logistics Agency (DLA) and the respective combatant commander to forecast necessary fuel requirements and distribution to support operational forces. Additionally, Navy is continuously working with DLA to review the strategic positioning of fuel and the infrastructure needed to support training, surge force and operationally deployed ships and aircraft.

General WALTERS. The Marine Corps conducts modeling and simulation to analyze energy supportability in operational plans and at lower levels in order to identify vulnerabilities and risk. Measures to mitigate those risks are generated and inserted into wargames in order to ascertain the effectiveness of the proposed mitigation measures. Those measures found to be impactful are then inserted into live force experimentation for validation and follow on requirements development. This process systematically and deliberately ensures that the Marine Corps is investing wisely to develop the critical capabilities required.

General WILSON. Overall, the Air Force is developing better tools and processes to analyze energy vulnerabilities at all levels: base, mission, campaign, and operations. On the installation side, the Air Force is participating in service and national level wargames, such as the North American Electric Reliability Corporation’s (NERC) GridEx, to look at how long-term disruptions to the nation’s electrical grid would impact the Air Force’s critical infrastructure and potentially jeopardize its ability to conduct its mission. On the operational side, service and combatant command war games and studies have concluded that while U.S. forces are considerably more lethal than in the mid-1990s, they consume more fuel. The aggregate impact of increased consumption by the joint force is significant and needs to be fully accounted for. Additionally, “red” attacks on fuel storage and resupply systems should be factored into training exercises, operational plans, and wargames. Assumptions used in operational planning and wargames about the availability and capabilities of key joint energy enablers supporting the near- and long-term fight need to be validated. The entire battlefield energy ecosystem needs to be looked at as a system of systems in order to fully recognize the energy-related risks on operational plans.

55. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, how can our acquisition systems better incorporate the use of energy in military platforms, and how, if at all, are assessments of future requirements for the maneuver and operational forces taking into account energy needs as a key performance parameter?

General ALLYN. Army Science and Technology in collaboration with our partners in industry, is developing and demonstrating more efficient power plants and drive trains for Army air and ground platforms that provide the technology options for

future acquisition efforts. The Energy Key Performance Parameter (KPP) is required for all new programs and addresses risks to operating and sustaining these new systems in combat. KPP includes both fuel and electric power demand considerations in systems, including those for operating “off grid” for extended periods when necessary, consistent with strategic analysis products.

Admiral MORAN. The Department of the Navy’s (DON’s) energy strategy emphasizes energy security and force capability enhancement for platform and weapons systems, as well as for non-tactical shore operations. Mandatory calculation of Fully-burdened Cost of Energy (FBCE), establishment of an energy component of the affordability target, energy consideration in acquisition plans, energy consideration in the acquisition governance gate review process and energy review of legacy systems have been implemented as energy considerations by using a uniform measure of calculation by all DON System Commands. The energy needs of future weapons systems are analyzed on the system level and as we see their role in strike groups. At the systems engineering level, the energy Key Performance Parameter is integrated with the other performance parameters to optimize and balance range, endurance, speed, and payload. The Navy then uses the Operational Energy Supportability Analyses to examine the energy supportability of the weapons system in the context of a larger warfighting capability, like a Strike Group, to ensure that we have the energy supplies and sustainment necessary. The development of the evolutionary MQ-25 Stingray is a very effective example. It is a system we are developing that helps address future tanking requirements for F/A-18 Super Hornet and F-35 squadrons.

General WALTERS. All new acquisition programs have energy Key Performance Parameters and Key System Attributes built into their requirements. The inclusion of these energy measures in the requirements process ensure that these attributes are built into the systems we acquire. In addition, the execution of Energy Supportability Analyses provides identification of the energy related impact of a system on warfighting capability at the higher level. We are also integrating energy needs into assessments as part of service level and Title 10 wargames to better identify energy induced risk areas and future requirements.

General WILSON. In developing future requirements, the Air Force supports and embraces the Joint Capabilities Integration Development System (JCIDS) Manual mandatory Energy Key Performance Parameter (KPP) requirement, which will enable enhanced combat capability by balancing energy requirements and performance for relevant threats. Furthermore, the Air Force will ensure our capability planners incorporate energy as a design criteria as described in Air Force strategy, instructions, policy directives, and guidebooks which reinforce the JCIDS mandate.

56. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, as you acquire new systems and modernize existing ones, how, if at all, is the fully burdened cost of energy factored into related acquisition decisions?

General ALLYN. The fully burdened cost of energy (FBCE) is factored into acquisition decisions. Army Regulation 70-1, “Army Acquisition Policy,” states: “All new Army acquisition programs (including new program starts and increments) with end items that consume energy shall include the FBCE needed to operate the system in their total ownership cost analysis.” To follow this policy, the Deputy Assistant Secretary of the Army for Cost and Economics (DASA-CE) estimates the FBCE through detailed scenarios and apportionment to provide the analysis and evaluation of alternatives for each program. Program managers use these results to determine system of-systems energy requirements to support acquisition program design trades.

Admiral MORAN. On June 20, 2011, the Assistant Secretary of the Navy for Research, Development & Acquisition (ASN(RD&A)) issued a memorandum that provided guidance for platforms and weapon systems concerning the use of energy-related factors in acquisition planning, analyses, development and competitive source selections. This memorandum also mandated the use of fully-burdened cost of energy (FBCE) calculations in program planning and specifically in the Analysis of Alternatives phase to inform system trade-off decisions and differentiate between competing systems. The memorandum specified that the Navy systems commands would develop a uniform method for calculating FBCE to support their respective acquisition programs. These methods have since been finalized and approved by the Office of ASN(RD&A), and are based on methodology and guidance previously developed by the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. The inclusion of energy evaluation factors in the acquisition process enables the Department of the Navy to make progress towards leadership goals for energy efficiency and alternative energy and meet legal mandates (e.g. Energy Independence and Security Act of 2007, National Defense Authorization Act of 2010).

General WALTERS. Fully burdened cost of energy analysis is conducted as part of the analysis of alternatives for major acquisition programs as directed by Department of Navy acquisition policy. In addition a Marine Corps Order directs the Marine Corps to consider energy performance tradeoffs with other performance factors when conducting modernization and upgrades to legacy programs.

General WILSON. The Air Force supports and utilizes the DOD-wide procedures, frameworks, and analytic tools that enable a better understanding and management of the effect of energy demand on force capability, vulnerability, and the enterprise's Total Ownership Costs. We also will ensure the acquisition workforce carefully considers energy procurement, delivery, logistics, infrastructure, and sustainment, as well as the force protection necessary to achieve these missions throughout the acquisition lifecycle.

CLIMATE CHANGE

57. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, since the 2010 QDR, DOD has identified climate change as a threat to both its operations and installations. Just last month, the National Intelligence Council stated that climate change and global health issues pose imminent and long-term threats through 2035. The GAO found that the Military Services have experienced limitations on access to training ranges due to thawing permafrost in Alaska, extreme weather events in Southern California, and reduced live-fire activities due to unusually dry conditions at ranges. Secretary Mattis recently stated to SASC that "the Department should be prepared to mitigate any consequences of a changing climate." Would you agree that climate change poses a threat and makes it more difficult for DOD to train and execute its missions?

General ALLYN. Extreme weather events remain a concern for Army installations and all Senior Commanders plan for these potential conditions, mitigate the risk where possible, and rehearse response plans to potential crises.

Admiral MORAN. DOD Directive 4715.21, Climate Change Adaptation and Resilience of January 14, 2016 provides DOD with the resources necessary to assess and manage risks associated with the impacts of climate change. To date, training range operators and users have not documented any difficulty in range use attributable to climate change. There has also been no impact to Navy missions, considerations for climate change impacts are however being incorporated with strategies and plans.

General WALTERS. As indicated within our submission to the 2017 Congressional Sustainable Ranges Report (SRR) and previous SRR reports, we recognize "climate change has potentially wide-ranging effects, especially in the coastal areas where the Marine Corps trains and operates. The Marine Corps is concerned that such effects could alter the capabilities of installations over time; therefore, these risks must be analyzed, monitored, and addressed in installation planning".

The Marine Corps utilizes a comprehensive approach to integrate climate change adaptation and resilience considerations for installation ranges and training areas. Climate change factors are incorporated into our existing assessments and planning processes for ensuring continued access to ranges and training areas and supporting infrastructure. Encroachment management policies include potential climate change impacts and related trends in natural hazards as a potential threat to the viability of, and access to, ranges and training areas. In addition, potential climate change impacts and other potential natural hazards to critical infrastructure are included in the threat hazard and vulnerability assessments supporting Marine Corps mission assurance policies.

We realize climate vulnerabilities is not a one-time occurrence. It is an iterative, recurring process involving periodic review of experienced weather and other climate-related events and trends, and evaluates potential mission impacts, while our understanding of climate science also continues to improve over time. Risk management decisions for each installation rely upon an assessment of local conditions and regionally-specific current/expected conditions.

The Marine Corps will continue to address all areas of encroachment. Our ranges and training areas will be required to support training of marines and Marine Corps units in an expanding array of mission-essential tasks that require ever-increasing amounts of training space and increasingly sophisticated range resources.

General WILSON. Bottom Line: Weather and climate conditions affect the operational environment in which the Department of Defense must train and operate. Anticipating how climate conditions will affect the future operations can inform the way we prepare, plan and posture our force structure. The Air Force already experiences impacts from changing climate conditions, such as coastal erosion, which threatens numerous strategic radar sites in Northern Alaska to recurring flood concerns at littoral bases like Joint Base Langley-Eustis. Additionally, changes in cli-

mate conditions have the potential to impact military test, training, operations, and readiness; for example:

- Resource competition could create geopolitical instability which would increase response demands;
- Increased humanitarian aid requirements could result from more intense and frequent extreme weather events;
- Infrastructure is more likely to be impacted when ice caps recede, sea levels rise, permafrost thaws, and increased floods and droughts.

58. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, what steps have you taken, if any, to plan and mitigate the threat and effects of climate change, particularly given the significant investment this country has made in our military installations, shipyards, and depots?

General ALLYN. We are assessing the vulnerability of Army built and natural infrastructure to the effects of a changing climate. For example, the Army is evaluating the water needs, usage, and capacity required to support mission execution on our installations.

Admiral MORAN. Coastal installations and the communities in which our sailors, marines, civilians and their families live are vulnerable to sea levels and storm surge. The resilience of these installations and communities is essential to future readiness associated with all naval mission areas. The Navy is incorporating various sea level change studies and the National Oceanic and Atmospheric Administration's Digital Coast SLR and Coastal Flooding tool into its existing processes and policies for managing the shore. For both current military construction projects and restoration and modernization projects >\$7.5 million that are located within a 100-year floodplain, the Navy requires an assessment of the vulnerability of mechanical and electrical subsystems to flood hazards and the implementation of necessary mitigation efforts to address these vulnerabilities. The Navy is also reviewing the Unified Facilities Criteria to identify needed updates to ensure that the direct and indirect physical effects of changes to sea level are incorporated into design and planning documents across the entire project lifecycle.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. The Air Force continues to integrate climate considerations more broadly into our policies, plans, and operations to better manage risks and effects of altered operating environments. Specific to ensuring sustainability and resilience of our installations, we incorporate consideration for the effects of changing climate conditions in our installation planning processes. This includes facility and infrastructure planning as well as emergency management planning. As our understanding of the range of future climate conditions improves, our planning will improve to better inform our investments from basing decisions to force structure to acquisitions.

59. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, how are you incorporating the risks from climate change and related shocks and other shifts in water, food and weather disasters into your strategies and plans?

General ALLYN. The Army will continue to work with Geographic Combatant Commanders (GCCs) on planning that ensures DOD is prepared to conduct operations today and in the future as well as address the effects of a changing climate on our readiness.

Admiral MORAN. Considerations for climate change impacts are being incorporated with strategies and plans in accordance with DOD Directive 4715.21, "Climate Change Adaptation and Resilience," January 14, 2016. For example, the Department of Navy and Coast Guard's maritime strategy, "A Cooperative Strategy for 21st Century Seapower," addresses risks from climate change, such as enhanced storms, rising sea levels, and coastal flooding. In addition, the "U.S. Navy Arctic Roadmap 2014-2030," outlines a deliberate Implementation Plan for anticipating, and preparing for, the impacts of climate change in the Arctic as that region becomes more accessible. The Navy may be called upon more often to provide Defense Support of Civil Authorities (DSCA) and Humanitarian Assistance and Disaster Relief (HA/DR), both domestically and overseas, in the face of more frequent and more intense natural disasters. The Navy is prepared and able to conduct pre-planned and emergent DSCA and HA/DR missions within the resource constraints and priorities of fleet operations. However, there is an opportunity cost in training, presence, and security cooperation activities when assets are diverted from current missions to respond to other contingencies.

General WALTERS. As outlined in DOD Directive 4715.21, "Climate Change Adaptation and Resilience," the Marine Corps takes a holistic view of climate change

into consideration. We do this when we review our installations' infrastructure; identify requirements associated with Humanitarian Assistance/Disaster Relief (HA/DR) plans and Defense Support of Civilian Authorities (DSCA); consider the impact of the life cycle of our weapons systems, platforms, and equipment; consider the impact to our training ranges and the subsequent impact to the effectiveness of the training; work with local authorities on developing plans for response to weather emergencies; identify requirements for personal protection equipment and medical protection measures necessary for operating in various climates and geographic locales; actively pursue measures to reduce our ecological and energy footprint; etc.

For a geo-specific O-Plan response, I defer to the Geographic Component Commanders.

General WILSON. The Air Force 30-year plan methodically integrates the best available estimates of future threats, and forecasts of economic, scientific, and environmental factors based on current strategy and future forecasts. As developments occur and risks from man-made or other environmental shocks can be quantified and included in the forecast, the Air Force will incorporate them in our long range plan.

60. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, are your component commands identifying water and food shortages, humanitarian and weather disasters, as challenges or events in their input to the UFR/IPLs and other requirements generation process? Are they incorporating these risks and opportunities into theater engagement and partner development?

General ALLYN. Our Army Service Component Commands support the efforts of the combatant commanders, who plan and execute their Theater Campaign Plans, Theater Security Cooperation Plans and contingency plans such as those for humanitarian assistance and disaster relief.

Admiral MORAN. Conducting humanitarian assistance and disaster relief (HA/DR) is one of the missions of the Defense Strategic Guidance (DSG). As such, component commands identify, plan and budget for requirements to support HA/DR as part of the Planning, Programming, Budgeting and Execution (PPBE) process. Expanding and strengthening partnerships is a priority of CNO's Design for Maintaining Maritime Superiority in order to execute all DSG missions. For HA/DR specifically, the Navy does include HA/DR planning and exercises into theater engagement and partner development with our Joint Services, interagency partners, and international partners. The U.S. Navy-led Pacific Partnership exercise is the largest annual multilateral HA/DR preparedness mission conducted in the Indo-Pacific region.

General WALTERS. Yes, in our planning processes, we consider requirements for combating the effects of climate change, as well as requirements for operating in regions impacted by climate change. This includes our annual budget development processes, the IPL, and the unfunded priority list.

More specifically, when we identify and develop requirements to support Marine Air-Ground Task Force (MAGTF) Humanitarian Assistance/Disaster Relief (HA/DR) missions, we want the MAGTF to be self-sustaining. While we are there to provide stability and address the immediate concerns of an impacted populace, oftentimes the engineering equipment and various utility capabilities we bring for MAGTF sustainment is instrumental in providing relief. This can range from drilling new wells, building bridges, or containing infectious disease outbreaks. For example, Tactical Water Production Systems (TWPS), material handling equipment (MHE), and medical equipment and supplies can be essential in providing relief.

For theater engagement and partner development, I defer to the Geographic Component Commanders.

General WILSON. Each year, the Air Force major commands review combatant command contingency and operation plans for their area of responsibilities to identify and elevate gaps and risks for funding considerations. In addition, the Air Force organizes, trains, and equips its personnel to respond to variety of contingency operations including natural disasters and humanitarian assistance. The Air Force applies this training during humanitarian missions and theater engagements throughout the year, which enables airmen to train partner nations on the risks and challenges associated with climate change and natural disasters. The Air Force applied this concept during the humanitarian and disaster relief efforts in the aftermath of Typhoon Haiyan in the Philippines in 2013.

61. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, what additional support do you need, if any, from Congress to fully identify and respond to the impacts of climate change?

General ALLYN. As a global force, we must be ready to respond and deliver mission success in all environments and conditions. We continue to assess, incorporate

and manage the effects of altered operating environments on our capabilities and capacity. This includes force structure, basing, military operations, capacity building, stability operations and the demand for Humanitarian Assistance/Disaster Relief and Defense Support to Civil Authorities in short and long-term plans. To be able to meet the demands of today's unstable global security environment, we require sustained, long term, and predictable funding. The most important steps that will have both positive and lasting impact is the repeal of the 2011 Budget Control Act, ensuring sufficient funding to train, man and equip the authorized force.

Admiral MORAN. The Navy appreciates Congress' support of our current efforts. The Navy has been evaluating the effects a changing climate may have on our built infrastructure, people, systems, and missions. For example, Navy coastal installations are especially vulnerable to changing sea levels and storm surge. The Navy is managing risk by incorporating tools and vulnerability assessments into our processes and policies, and updating design and planning documents for facilities projects. The Navy will engage Congress as appropriate to sustain mission capability.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. The Air Force welcomes Congressional support in addressing gaps and risks associated with the climate change should the need arise in the future. We will work with the appropriate bodies to identify areas for additional support.

BRAC

62. Senator KAINE. General Allyn, Admiral Moran, General Walters, General Wilson, what is your position on BRAC?

General ALLYN. The Army has indicated its need for BRAC repeatedly in testimony. Should the Department receive BRAC authority we will use it effectively to eliminate excess and reinvest funds on higher priorities.

Admiral MORAN. The Navy's readiness-related functions most at risk because of the hiring freeze are those not covered by Section A of the Secretary of Defense's implementation memorandum, but still critical to the production process at our shipyards, aviation depots, and intermediate level maintenance activities. These functions include human resources and training personnel required to bring on board new production workers exempted from the hiring freeze, and production support functions including contract management, engineering, finance, quality assurance, and project management. The hiring freeze could also make it more difficult to attract and retain the future workforce across all skill sets, and slow replacement for losses through normal attrition. Recurring hiring freezes further reduce morale across the federal workforce and hinder our ability to recruit and retain highly-skilled employees as an employer of choice as we try to recover from previous years of budget uncertainty. The Department of the Navy has executed a rapid response plan which ensures the integrity of decisions and streamlines processes to the maximum extent in support of the priority work of our Department and its mission. The full impacts to readiness will depend on the ultimate length of the hiring freeze.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

General WILSON. I strongly support the Department of Defense requests for Base Realignment and Closure (BRAC) authority. Even with growth to a 350,000 Active Duty force, the Air Force projects it will have 24 percent excess infrastructure capacity, so we've got ample margin to reduce infrastructure, grow our force and be capable of surging should the need arise. Without BRAC authority, the Air Force will continue to spend our limited budget on infrastructure we don't need, rather than mission-critical readiness, modernization, and infrastructure we do need.

QUESTIONS SUBMITTED BY SENATOR JEANNE SHAHEEN

ADVANCED COMBAT HELMET GENERATION II

63. Senator SHAHEEN. General Allyn and General Walters, I understand there are several contracts currently under consideration or soon to be released, including combat helmets—notably the Advanced Combat Helmet Generation II (ACH Gen II) for the Army. These contracts are designed to provide next generation, advanced protective equipment for our men and women in uniform and are critical to the readiness of the service branches.

It has come to my attention that a helmet manufacturer with a questionable past performance record has submitted a proposal to compete for this contract. This company was subject to a Department of Justice Inspector General report (attached)

highlighting “findings of fraud and other irregularities related to the manufacture and sale of combat helmets,” which found that over 126,000 Advanced Combat Helmets (ACH) were not manufactured to contract specifications by Federal Prison Industries (FPI), defective and recalled from circulation. This action resulted in over \$19 million in unnecessary costs to the Federal government and severely endangered our warfighters in the field.

General Allyn and General Walters, what steps are being taken by the Army and Marines to ensure that current and upcoming Request for Proposal responses for personal protective equipment (PPE), specifically helmets, are evaluated on a “best value” basis and not on Lowest Price/Technically Acceptable (LPTA) guidelines and that past performance is accounted for in these evaluations?

General ALLYN. The Army’s strategy for acquiring personal protective equipment, to include helmets, is to promote competition and award contracts based on well defined, validated and tested requirements. Past performance is one of several evaluation factors that the Army thoroughly assesses to determine confidence in an offeror’s ability to perform. There are two approved Best Value contracting methods: LPTA and Trade-Off. LPTA is not being used for the ACH Generation II contract you mentioned. Instead, the Army will award using a Trade-Off contract between technical and price evaluation factors. Regardless of contract type, products must always meet the highest standards for soldier safety, proven by formal testing to Army validated requirements. I assure you the Army will continue to ensure soldiers have the best protection available.

General Walters did not respond in time for printing. When received, answer will be retained in committee files.

QUESTIONS SUBMITTED BY SENATOR MAZIE HIRONO

REFUELING CAPABILITY IN THE PACIFIC

64. Senator HIRONO. General Wilson, you testified to the importance of refueling tanker capabilities to support the global reach of Air Force missions. The current tankers the Air Force has are old and the new KC-46 tankers are not scheduled to arrive in the fleet until 2019. What is the Air Force’s plan for refueling capabilities in the Pacific until the new KC-46 tankers arrive?

General WILSON. With the acquisition of the KC-46, the Air Force plans to grow the tanker fleet from 455 to 479 aircraft as the KC-46 comes online. Until the new KC-46 tankers arrive, the Air Force will follow the current process to provide refueling capabilities in the Pacific and all theaters. If theater assigned assets are insufficient to meet requirements, the theater geographic combatant commander will submit a request for forces (RFF) to the Joint Staff, and the Joint Staff will follow the global force management allocation plan (GFMAP) process to provide forces based on availability and prioritization. Multiple analyses confirm tanker requirements during times of contingency, including contingencies in the Pacific, can be met with a tanker fleet of 479 aircraft. By growing the tanker fleet from 455 to 479 aircraft with the addition of the highly capable KC-46 aircraft included in that mix, the Air Force will be able to maintain sufficient air refueling capacity in the Pacific.

DIVERSITY

65. Senator HIRONO. General Allyn, while the graduation of the first females from Ranger School and the opening of all MOSs to all soldiers is a great step for diversity in our armed forces, what is the Army doing to mentor junior officers and enlisted personnel from these and other diverse groups to ensure that they have the opportunity and guidance to someday become senior leaders in the Army?

General ALLYN. The soldier 2020 formal education plan provides leaders with? the opportunity and knowledge to mentor leaders and soldiers assigned to previously closed units. As one example, the Infantry School brought recent Infantry Basic Officer Leader Course (IBOLC) graduates, both male and female, to the United States Military Academy’s SMA Branch Week. This opportunity provided recent perspectives by both genders as it relates to combat arms training. During Branch Night, IBOLC graduates interacted with recently branched Infantry cadets to share personal experience and mentorship.

RETENTION RATE

66. Senator HIRONO. General Walters, you testified that retention should not be taken for granted and that you need to provide marines and sailors the tools required to do their jobs. If the Marine Corps are authorized to increase its end strength numbers, what steps will you take to ensure that the quality of marines

recruited and the training they receive will maintain the Marine Corps standard when you grow the force to meet requirements?

General WALTERS. We have no intention of changing our minimum standards for the recruitment of potential marines. The current Marine Corps recruiting force is designed to access up to 38,000 total force (regular and reserve) with 63 percent scoring in the top three tiers of the Armed Forces Qualification Test (DOD standard is 60 percent) and 95 percent graduating from high school (DOD standard is 90 percent). The Marine Corps has accessed its annual mission at or above the USMC standards consistently through years of both increasing and decreasing end strength.

As we look to increase our end strength we are paying close attention to the training this force will need to meet the challenges of future operating environments. The complexity that we expect to characterize these operating environments will require adaptive and innovative marines that are able to out think their foes and overcome the chaos found in combat. As such, we are conducting detailed analysis to ensure our training and education establishment is prepared to make the necessary adjustments to grow the force responsibly. We will need to change the way we approach training and education, increase our use of technology and simulation to give our marines an immersive experience that replicates the demands of combat, provide better live fire ranges, and develop methods that will improve their decision making ability. All of this speaks to the need to ensure that we provide the resources necessary to transform our training and education so that we will not only be able to train increased numbers of marines, but also provide them with demanding training that ensures they are ready to answer the Nation's call.

EAGLE VISION

67. Senator HIRONO. General Wilson, as you know, Eagle Vision is a deployable ground station for collecting and disseminating unclassified commercial satellite imagery. It can provide imagery products to warfighters and first responders in a timely fashion. The products can also be released quickly to allies due to the commercial nature of the imagery.

I have been an advocate of this system and have discussed the importance of this program with past and present Air Force and National Guard Bureau leadership.

One concern I have had is that over the years the Air Force has not funded this program to a level necessary to maintain the capabilities which made it so valuable in the first place. As a result of the reduced funding levels, important system capabilities such as electro-optical imagery, and synthetic aperture radar have either been diminished or completely eliminated. Maintenance, training and system upgrades have also been impacted.

While the Air Force continues to face a challenging fiscal environment, it is my hope that key decision makers keep in mind the tremendous capabilities and flexibility that this system provides. The Eagle Vision system provides a significant return on investment especially if it is fully funded to reduce maintenance risks and other capabilities are restored.

It has been alleged that the demand signal for the Eagle Vision products are diminishing. I would caution that we have to be aware of a potential self-fulfilling prophecy. Underfunding the program leads to maintenance and sustainment risks, reductions in training, and reduced variety of imagery available leading to a diminished overall system capability. If the system becomes less capable no matter the reason, the demand will likely decrease.

I hope that the Air Force will continue to recognize the value of this capability and will continue to support this system which provides invaluable support in domestic disaster relief operations as well as for international efforts with our friends and allies.

Can you provide an update on where you are in terms of fiscal year 2017 funding for the program? Also, while I understand that you can't discuss the actual fiscal year 2018 budget, can you keep me informed of any changes you are considering for the Eagle Vision program?

General WILSON. The Fiscal Year (FY) 2017 President's Budget (PB) requested \$14.6 million in programmed funds for Eagle Vision. This budget provides \$8.8 million of operations and maintenance (O&M) funding and \$5.8 million of procurement funding. An additional \$4.96 million in O&M is required to minimally fund Eagle Vision Electro Optical (EO) operations in fiscal year 2017 and the Air Force will internally fund the shortfall with execution year funds. The programmed \$5.8 million in Procurement provides funding for the System Program Office and equipment upgrades to include hardware and software for the ground sites. The programmed \$8.8 million in fiscal year 2017 O&M funds Air National Guard technician payroll, train-

ing, travel, imagery production equipment, licensing and supplies for the Air National Guard and Active Duty to keep the Eagle Vision sites operational. It also funds the EO imagery contract through 31 July 2017 and one contractor support position.

Programmed fiscal year 2017 O&M funds a portion of the maintenance and sustainment (M&S) contract. Funded parts of the M&S contract are ground site architecture, software support, data acquisition, antenna maintenance and limited notice support for ground sites. Contractor travel, system engineering and information assurance requirements of the M&S contract are partially funded. The Air Force plans to use \$4.96 million of internal execution year funds to fully fund the EO and M&S contracts through all of fiscal year 2017. In the future, Eagle Vision will continue to compete for funding in a constrained fiscal environment and will seek to maximize capability within resource constraints.

**DEPARTMENT OF DEFENSE AUTHORIZATION
FOR APPROPRIATIONS FOR FISCAL YEAR
2018 AND THE FUTURE YEARS DEFENSE
PROGRAM**

WEDNESDAY, MARCH 29, 2017

U.S. SENATE,
SUBCOMMITTEE ON READINESS
AND MANAGEMENT SUPPORT,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

**THE HEALTH OF THE DEPARTMENT OF DEFENSE
INDUSTRIAL BASE AND ITS ROLE IN PROVIDING
READINESS TO THE WARFIGHTER**

The subcommittee met, pursuant to notice, at 2:15 p.m., in Room SR-232A, Russell Senate Office Building, Senator James Inhofe (chairman of the subcommittee) presiding.

Subcommittee members present: Senators Inhofe, Rounds, Ernst, Perdue, Kaine, and Hirono.

OPENING STATEMENT OF SENATOR JAMES INHOFE

Senator INHOFE. Senator Kaine and I have a policy where we start on time. If everybody does that, then everybody shows up. If they do not, they will not show up. So we are going to go ahead and do that.

I will have an opening statement, and you will have an opening statement, and then we will get ready to hear the presentations. This is going to be very, very significant, this hearing.

Today, we are joined this afternoon by Lieutenant General Larry Wyche—I am sure that you been around to see most of these members; Vice Admiral Grosklags; Vice Admiral Thomas Moore; Lieutenant General Michael Dana, the Deputy Commandant of the Marine Corps; Lieutenant General Lee Levy, who is out in my State of Oklahoma at Tinker Air Force Base.

I thank the witnesses for agreeing to testify today, and I also thank Ranking Member Senator Kaine for his leadership and partnership on this issue. We work very well together. We are old friends.

Just last month, the subcommittee received testimony from the service Vice Chiefs on the current readiness of Armed Forces. Now that is what we heard the last time in the first committee hearing that we had, and I remember one of the witnesses was reflecting back in the 1970s when we had a hollow force.

I think, even though it is not all that well-defined, I think we have a hollow force today. I am very much concerned about it.

I think this is a very significant hearing to hear from you folks, and I look forward to your testimony.

Senator Kaine?

STATEMENT OF SENATOR TIM KAINE

Senator KAINE. Thank you, Mr. Chairman.

Thanks to all the witnesses. I do appreciate your service and appreciate you being here today as we take testimony that will help us as we start to work on the Fiscal Year 2018 NDAA [National Defense Authorization Act]. We want to do it in such a way that we can restore full spectrum readiness as soon as we can.

As my chair mentioned, we do work well. We had a hearing last month, and the Vice Chiefs laid out how the DOD [Department of Defense] continues to suffer from unacceptable levels of full spectrum readiness, and we heard a mantra worth repeating today, that DOD needs more predictable and stable funding. Readiness is a function of many things. Predictability is one of the key ingredients.

The five witnesses today are going to help us understand the direct correlation between the readiness of maintenance facilities and the degraded operational readiness measured in terms of decreased training, flying, and steaming days.

Specifically, I am hoping to hear from witnesses about the impact that unpredictable funding has on workload planning and how the condition of a degraded shipyard or depot impacts the ability to retain skilled employees, engineers, and workers.

We have recruiting and retention bonuses for men and women in uniform, and for good reason. We need to make sure that we find ways to better retain and reward those serving at home and abroad.

We often hear about how military platforms need modernization, and yet so does the infrastructure that maintains those platforms. So the deferred maintenance backlogs at shipyards, ammunition plants, air logistics centers, arsenals, and depots continues to grow and has been left unaddressed for a very long time.

We have technology challenges as we hope to modernize our organic industrial base. I think we should pay more attention to key enablers, this important set of institutions, workforce, and technology.

This subcommittee and the DOD should work together to explore new ways for the shipyards and depots to recruit and retain the highly skilled workforce they need now and in the future.

Some of the models that we are using to support cybersecurity and laboratory R&D [research and development] workforce can be used here as well. For example, apprenticeships, internships, the scholarship for service program for civilian service in the DOD, and exchanges with private industry all have a place to play in getting us that workforce.

We need to make better use of our innovative partners like DOD labs, universities, industry, and even places like DARPA [Defense Advanced Research Projects Agency] to develop the new technologies to improve efficiency.

I had a great meeting, Mr. Chair, with General Dana yesterday. We talked about the growth of 3D printing as something that is really changing some of our functions in a good way.

One of the first directives that the new administration put out that has concerned me was the Federal hiring freeze, making a difficult problem worse, and I will ask about that today. There were some exemptions, yet even with exemptions, the hiring freeze impacts and even flies in the face of common sense, whether it is a child care worker in Germany, or a commissary worker stocking shelves in Virginia, or an engineer who does not have direct touch with platforms but nevertheless is critical to the development of platforms, some of this impact has been felt.

The hiring freeze, in my view, is an unnecessary layer of red tape at a time when we should be encouraging the next generation of Americans to weld holes at shipyards, manufacture gun tubes at an arsenal, write software code for the most advanced fighter aircraft on the planet.

So we have to put ourselves in the shoes of high school grads and college undergrads. The hiring freeze that was announced was 90 days with TBD to follow, but if you are a youngster with a lot of talent and you are thinking about what you want to do, when you look at a Federal workforce that is going to be dramatically affected by hiring freezes, you would probably be smart to think about other lines of work.

The bottom line is that the civilian workforce is just as dedicated to men and women in uniform. Many of them wore combat helmets before they were part of the civilian workforce, and we rely on them, as many in the defense industrial and production facilities, to help us succeed.

Finally, I would just suggest again what I have been suggesting since I came to the Senate in January 2013. One of the first votes I cast in February was to turn off the sequester. It was originally a deal to force us to find a budget deal, and it was sort of an interesting philosophy. In order to force ourselves to do something smart, we will agree, if we do not, to do something stupid.

I never really thought that was a good management technique, and when I came into the Senate, I said, let's turn it off and let's just make our budgets about advocating for priorities. When we decide upon priorities, we will do budgets based on priorities rather than priorities based on budgets or, worse, priorities based on budgetary uncertainty.

I think especially it is kind of an interesting time, a new administration, all levers of power, executive and both Houses, in the control of one party. We could get rid of the sequester caps on both defense and nondefense and then just make our case about what we think the Nation should spend in these areas. I would hope that we might have that discussion in the full committee.

But for purposes of today, we are going to hear good testimony that will go into the record and help us as we get into the NDAA process.

I am glad my chair has called this committee, and I look forward to your testimony.

Senator INHOFE. Good. Thank you, Senator Kaine, just so it will be in the record, when we first heard about the hiring freeze, of

course, the exception being the military, we immediately got that corrected.

Just take our depot in Oklahoma that General Levy is very familiar with. They only have one uniformed officer in the whole place. They have a couple thousand employees. You cannot make ordnance. You cannot fight a war if you are not making ordnance.

So those areas had to be corrected immediately and were corrected immediately.

Now, we are going to hear from each one of you guys, and we will ask you to try to confine your statements to 5 minutes, and your entire statements will be made a part of the record.

So we will start with Lieutenant General Larry Wyche, a Deputy Commanding General of the United States Army Materiel Command.

**STATEMENT OF LIEUTENANT GENERAL LARRY D. WYCHE,
USA, DEPUTY COMMANDING GENERAL, UNITED STATES
ARMY MATERIEL COMMAND**

LTG WYCHE. Senator Inhofe, Ranking Member Kaine, and distinguished members of the subcommittee, thank you for the opportunity to testify on the readiness of the Army's organic industrial base. On behalf of our Acting Secretary, the Honorable Robert Speer, and our Chief of Staff, General Mark Milley, thank you for your support and demonstrated commitment to our soldiers, our Army civilians, families, and veterans.

It is an honor for me to appear today along with my distinguished colleagues from the Navy, Marine Corps, and Air Force.

Since the War of 1812, our Nation has reaped the rewards of the unique capabilities that reside in our organic industrial base. Today, 23 ammunition plants, depots, and arsenals produce combat readiness by manufacturing, repairing, and resetting our military's equipment.

Our organic industrial base directly employs a skilled workforce of more than 22,000 people. Many of them are highly skilled artisans and craftsmen who deliver readiness while supporting operations impacting all 50 States.

The organic industrial base is often referred to as America's national security insurance policy. As with all insurance policies, there must be sufficient coverage in advance of crises and the confidence that the policy will be delivered and honored.

The organic industrial base represents the very best protection, paying dividends in the form of readiness now while providing the capabilities to regenerate equipment and unit readiness at the offset of future crises.

The Army's organic industrial base serves to mitigate risks by providing strategic depth and scalable response during times of crises by producing materiel, which include ammunition, explosives, trucks, artillery tubes, tanks, helicopters, and much more. Our manufacturing base has always delivered state-of-the-art technology and equipment to our globally engaged forces.

The two greatest challenges that we face today in our organic industrial base are budget caps mandated by the Budget Control Act of 2011 and the lack of consistent and predictable funding, as evident by repeated continuing resolutions. The longer the Army oper-

ates under the budget cap in an unpredictable fiscal environment, the more difficult it is to sustain production and retain a skilled workforce.

We recognize the commitment and steadfast support by the committee over the last 16 years. Without your support, the organic industrial base could not have surged when called upon in support of Operations Iraqi Freedom and Enduring Freedom.

I would like to thank each distinguished member of this committee for allowing me to offer this testimony today. Your continued steadfast support enables us to maintain and modernize our organic industrial base while simultaneously preserving and developing the workforce required to provide value to our Nation in the form of readiness.

General Milley states it so succinctly. The number one priority for the Army is readiness. The foundation of Army readiness is a responsive industrial base.

Thank you.

[The prepared statement of General Wyche follows:]

PREPARED STATEMENT BY LTG LARRY WYCHE

INTRODUCTION

Chairman Inhofe, Ranking Member Kaine and distinguished members of the Subcommittee, thank you for the opportunity to testify on the readiness of the Army's Organic Industrial Base. On behalf of our Acting Secretary, the Honorable Robert Speer, and our Chief of Staff, General Mark Milley, thank you for your support and demonstrated commitment to our soldiers, Army civilians, families and veterans.

Since the War of 1812, our great Nation has reaped the rewards of the unique capabilities resident in our Organic Industrial Base (OIB) to manufacture and repair the equipment and materiel needed to equip and sustain our Armed Forces. Today, 23 ammunition plants, depots and manufacturing arsenals produce combat readiness by manufacturing, repairing and resetting our military's equipment. These depots, plants and arsenals possess specialized core competencies and are operated by a workforce of highly-skilled artisans, some of whom are the 2nd and 3rd generation of a family dedicated to the defense of our nation. These patriots and the facilities in which they work provide a unique set of capabilities that enable readiness and the projection of national power.

The OIB is often referred to as America's National Security Insurance Policy. As with all insurance policies, there must be adequate coverage in advance of a crisis and confidence that the policy will be honored. The OIB represents the very best protection—paying dividends, in the form of readiness now, while providing the capability to regenerate equipment and unit readiness at the outset of the future crises. The OIB directly employs more than 22,000 people in operations that span all 50 states. The annual economic impact of the OIB on local economies is in excess of \$3.696 billion. As an example, McAlester, Radford and Iowa Ammunition Plants, as well as the Anniston Army Depot, collectively introduce \$205.1 million into their communities each year.

The Army's Organic Industrial Base serves to mitigate risk by providing strategic depth and scalable response during times of crisis. Whenever called upon, the OIB delivers equipment to the tactical point of need that is maintainable and affordable within the tactical commander's available resources (soldiers, time and dollars). From small arms, ammunition and explosives, to trucks, radars, optics and main battle tanks, our manufacturing base has always delivered state-of-the-art technology and equipment to our globally engaged forces.

CHALLENGES

The two greatest challenges we face today with our OIB are budget caps mandated by the Budget Control Act of 2011 and a lack of consistent and predictable funding as evidenced by repeated continuing resolutions. Sequestration's legacy of imposing cuts without consideration of national security requirements must be brought to an end. Our military's readiness is held hostage to it. Also, continuing resolutions have fostered an era of unpredictable funding that adversely affects the

OIB. A year-long continuing resolution will preclude the Army from funding Depot Maintenance at the level needed to rebuild 4 Apache helicopters, 2 Black Hawk helicopters, several Patriot Air Defense systems, as well as upgrades to weapon system required to ensure interoperability on the battlefield.

Additionally, the longer the Army operates under the budget caps and in an unpredictable fiscal environment, the more difficult it is to sustain production at levels that maintain workforce skill sets. Exploiting best business practices in our industrial operations requires consistent levels of funding that facilitate long term planning.

Furthermore, parts of our manufacturing and facilities infrastructure are near the end of their life cycles. We need your continued assistance with modernization and replacement. Since fiscal year 2005, more than \$2 billion has been invested in automation and robotics to enhance production and ammunition out-load capabilities, as well as attain energy self-sufficiency. Given the value of the OIB's infrastructure, keeping it in good order offers a good return on investment.

MAINTAINING READINESS

We recognize and are extremely appreciative of this committee's steadfast support through the past 16 years of war. Without your support, the OIB could not have surged when called upon in support of Operations Iraqi Freedom and Enduring Freedom, to reset nearly four million items of equipment—a workload three times that of the workload during the Vietnam War. To put this in operational terms, that equates to resetting 105 Brigade Combat Teams.

The capabilities of our adversaries continue to evolve.

General Milley states it most succinctly; "The Army's number one priority is readiness." A foundation of Army readiness is a vibrant and responsive industrial base. We cannot afford to let our warfighting capabilities fall into decay because within the OIB reside one-of-a-kind resources that cannot be easily revived or replicated, and certainly not in time to respond to a national crisis. Now more than ever, we must enhance our readiness through continued investment in our organic capabilities in order to ensure our force can conduct and sustain a combined arms fight in unified operations. In that way we can deter our adversaries and, importantly, win decisively without undue risk to the force.

For example, Nitrocellulose is a key compound used in making explosives. The Radford Army Ammunition Plant is the only known manufacturer of nitrocellulose in North America. McAlester Army Ammunition Plant is so proficient at manufacturing certain munitions that the Navy and the Air Force ask them to produce ordnance to meet both their wartime and training requirements. Watervliet Arsenal is the only manufacturer of large caliber cannon tubes in this hemisphere. Every howitzer at Ft. Sill has a gun tube produced at Watervliet. In fact, in 2013 as the Army was preparing to upgrade the M109A6 self-propelled howitzers to the A7 configuration, corrosion was discovered in the bore evacuators on the cannon barrels. The Army determined that nearly 75 percent of these Paladin howitzers in the inventory were non-mission capable due to bore evacuator corrosion. In nine months' time, Watervliet repaired 157 of the 171 barrels that were repairable and replaced 73 of the 88 that were not. The skilled and determined workforce, combined with the unique capabilities resident in the arsenal, averted a crisis.

Since 2003, Army equipment reset requirements have generated \$29.5 billion in work for the OIB. Orders from the U.S. Air Force, Navy and Marine Corps have generated another \$5.7 billion in revenue. In 2015 alone, the Army's Organic Industrial Base provided \$698 million in joint depot work and \$504 million in joint parts, demonstrating its impact on not only Army readiness but the readiness of all our Armed Forces. The output of our depots, plants and arsenals not only provides strategic depth but produces direct economic impact on a supply chain of over 11 thousand vendors—many of which are small businesses.

While we are asking for your support, it is important to note that we are working feverishly to maximize the impact of the resources you have provided. In the past four years, the Army has reduced its inventory of secondary items by 9.2 billion. The OIB has realized \$4.5 billion in financial benefits like cost avoidance through continuous process improvement projects since 2011.

As retrograde and reset operations slow, the Army must find innovative ways to reshape itself and leverage its investments with partners from other parts of DOD, government and the private sector when missions, goals, and requirements align. Preserving the workforce, optimizing processes and aligning workload to unit readiness and sustainment needs must be prioritized as we divest obsolete systems and equipment. Simultaneously, we must continue to develop the capabilities required to meet future requirements.

CLOSING

This committee, more than anyone else, knows that the world is more dangerous and unpredictable than it has ever been. While our nation's greatest minds work hard to predict the future we are continually surprised by the unpredictable. In every instance of crisis, the OIB has responded by providing solutions to meet unanticipated demands. If the OIB is to continue to deliver when our nation needs it most, we must invest now. Consistent and predictable funding to preserve, maintain and modernize our critical capabilities provides the last line of defense against the unknown, while we continue to produce readiness that guarantees that we will win wherever and whenever our nation calls.

I would like to thank each distinguished member of the Committee for allowing me to offer this testimony today. Your continued steadfast support enables us to maintain and modernize the OIB, and simultaneously preserve and develop the workforce required to provide value to our nation in the form of future readiness and deterrence.

Senator INHOFE. Thank you, General Wyche.

We will now hear from Vice Admiral Grosklags, Commander, United States Naval Air Systems Command.

**STATEMENT OF VICE ADMIRAL PAUL A. GROSKLAGS, USN,
COMMANDER, UNITED STATES NAVAL AIR SYSTEMS COM-
MAND**

VADM GROSKLAGS. Thank you, Mr. Chairman, Ranking Member Kaine, distinguished members of the subcommittee.

I appreciate the opportunity to be here with you today to discuss specifically, in my case, naval aviation and some of the readiness challenges that we face. I know those challenges, as you mentioned in your opening statement, are no surprise to this subcommittee, as both the Vice Chief and the Assistant Commandant testified to that effect about a month ago.

About our aviation depots specifically—and we call them Fleet Readiness Centers, so I might use those terms interchangeably. They are a critical element in our overall readiness recovery plan. They are continuing a steady recovery from fiscal year 2013 primarily and the impacts of furloughs and hiring freezes associated with sequestration, to your point, Senator Kaine. But also, they are recovering from years of limited and uncertain funding.

Today, they are also increasing their workload. The demand on them actually has never been higher. Sixteen years of wartime activity, the challenging material condition of the aircraft that are coming in the front door as well as the extension of our aircraft service lives well beyond what we had originally planned to utilize them to. A case in point that I think most of you are familiar with are our F-18 A through D models.

While we will always remain challenged as long as we are flying with our F-18 A through D models in terms of keeping them ready, we have stabilized that particular depot production line. We have become predictable in our delivery of those assets back to the fleet. By the end of this Year, beginning of next calendar year, we will have met the fleet's requirement for in-service or in-reporting F-18s.

So while we are turning the corner there on F-18s, as I mentioned earlier, the overall workload continues to increase, as we see increasing demand signals for V-22s, H-1s, other type model series, as well as component repair VR [virtual reality] supply system.

But it is also important that we all recognize that getting our depots back up on step really only addresses one piece of the readiness equation. We have to be equally focused on our supply support, our maintenance planning, our maintenance publications, our support equipment, the training and qualifications of our sailors and marines who maintain these aircraft, and I could go on.

But those things are just as important as our depot capability. The funding for those efforts is through a variety of individual line items. We collectively tend to call those our enabler accounts. As the Department has struggled to balance our competing requirements and limited resources for the last number of years, funding in these accounts has been severely constrained, and I can tell you that readiness has suffered as a direct result of that lack of funding.

In our fiscal year 2017 request, the Department has taken a major step forward toward addressing the required funding for these enabler accounts. The request for additional appropriations further augments that request and our recovery efforts. Because of that, if we end up operating under a full-year continuing resolution, there will be a significant negative impact to our ability to continue our overall naval aviation readiness recovery efforts.

As you said, Senator Kaine, in your opening, stable, predictable, and sufficient funding is absolutely critical to our readiness recovery efforts. I look forward to working with the subcommittee to that end, and I look forward to your questions.

Thank you.

Senator INHOFE. Thank you, Admiral Grosklags.

We will now hear from Vice Admiral Thomas Moore, United States Navy, Commander United States Naval Sea Systems Command.

STATEMENT OF VICE ADMIRAL THOMAS J. MOORE, USN, COMMANDER, UNITED STATES NAVAL SEA SYSTEMS COMMAND

VADM MOORE. Thank you, Mr. Chairman. Mr. Chairman, ranking member, distinguished members of the subcommittee, on behalf of the 73,000 men and women in the Naval Sea Systems Command, I thank you for the opportunity to discuss the health of the industrial base and its critical role in maintaining the readiness of our fleet.

The Naval Sea System Command's number one priority is the on-time delivery of ships and submarines to the fleet. At any given time, about one-third of the Navy's fleet is undergoing either a major depot maintenance availability in one of our four naval shipyards and private sector surface ship repair shipyards or conducting pier-side intermediate maintenance.

Our naval shipyards and our private sector partners are the cornerstone of that effort to deliver our ships and submarines on time. The 33,850 men and women who work in our naval shipyards and the workers in our private sector partners today are true national assets.

The high operational tempo in the post-9/11 era combined with reduced readiness funding and consistent uncertainty about when these reduced budgets would be approved have created a large mismatch between the capacity of our public shipyards today and their

required work. This mismatch has resulted in a large maintenance backlog which has grown from 4.7 million man days to 5.3 million man days between 2011 and 2017.

Today, despite hiring 16,500 new workers since 2012, the naval shipyards are more than 2,000 people short of the capacity required to execute the projected workload, stabilize the growth and the maintenance backlog, and eventually eliminate that backlog.

[The information referred to follows:]

“The high operational tempo in the post 9/11 era combined with reduced readiness funding and consistent uncertainty about when these reduced budgets will be approved have created a large maintenance mismatch between the capacity in our public shipyards and the required work. This has resulted in a large maintenance workload, which has grown from 4.7 million man-days in 2011 to a planned 5.3 million man-days in 2017. Today, despite hiring 16,500 new workers since 2012, Naval Shipyards are more than 2,000 people short of the capacity required to execute the projected workload, stabilize the growth in the maintenance backlog and eventually eliminate that backlog.”

This man day shortfall coupled with reduced workforce experience levels—and today, half of my workforce has been in naval shipyards for less than 5 years—and shipyard productivity issues have all impacted fleet readiness through the late delivery of ships and submarines.

However, although we face many challenges, the challenges are not insurmountable. Years of sustained deployments and uncertain funding have created a readiness debt that we must begin to address today.

In our naval shipyards and private sector, that begins with defining the full maintenance requirement, matching the budget to that requirement, ensuring the capacity to perform work matches that workload, and improving the productivity of our workforce through improved training and infrastructure investments that must be made to modernize our naval shipyards.

We can and we must tackle each of these issues today and sustain that focus into the future. Only then will our industrial base be able to provide the readiness required of our Navy today and into the future.

I look forward to your questions.

Senator INHOFE. Thank you, Admiral Moore.

[The combined prepared statement by Vice Admiral Paul A. Grosklags and Vice Admiral Thomas J. Moore follows:]

COMBINED PREPARED STATEMENT BY VICE ADMIRAL PAUL A. GROSKLAGS AND VICE ADMIRAL THOMAS J. MOORE

Mr. Chairman, Ranking Member Kaine, and distinguished members of the Subcommittee, we appreciate the opportunity to testify on the current state of Navy readiness and the challenges we face today and in the future.

Before we discuss Navy’s readiness challenges and our plans to address them, it is important to understand our present situation. Globally present and modern, our Navy provides timely, agile, and effective options to national leaders as they seek to advance American security and prosperity. Today, however, the ongoing demand for naval forces continues to grow, which will require the Navy to continue to make tough choices. In the classic trade space for any service (readiness, modernization and force structure), readiness has become the bill payer in an increasingly complex and fast-paced security environment. To address these realities, the Navy has identified investments to restore the readiness of the fleet today to shore up what we have. At the same time, we cannot restore the fleet to full health without also updating our platforms and weapons to better address current and future threats, and evaluating the right size of the Navy so that it can sustain the tempo of operations

that has become the norm. The Navy is actively working on plans for the future fleet with Secretary Mattis and his team, and we look forward to discussing those plans with you when they are approved.

To characterize where we are today, we would say it's a tale of two navies. As we travel to see our sailors in the United States and overseas, it is clear to me that our deployed units are operationally ready to respond to any challenge. They understand their role in our nation's security and the security of our allies, and they have the training and resources they need to win any fight that might arise. Unfortunately, our visits to units and installations back home in the United States paint a different picture. As our sailors and Navy civilians, who are just as committed as their colleagues afloat, prepare to ensure our next ships and aircraft squadrons deploy with all that they need, the strain is significant and growing. For a variety of reasons, our shipyards and aviation depots are struggling to get our ships and airplanes through maintenance periods on time. In turn, these delays directly impact the time Sailors have to train and hone their skills prior to deployment. These challenges are further exacerbated by low stocks of critical parts and fleet-wide shortfalls in ordnance, and an aging shore infrastructure. So while our first team on deployment is ready, our bench—the depth of our forces at home—is thin. It has become clear to us that the Navy's overall readiness has reached its lowest level in many years.

There are three main drivers of our readiness problems: 1) persistent, high operational demand for naval forces; 2) funding reductions; and 3) consistent uncertainty about when those reduced budgets will be approved.

The operational demand for our Navy continues to be high, while the fleet has gotten smaller. Between 2001 and 2015, the Navy was able to keep an average of 100 ships at sea each day, despite a 14 percent decrease in the size of the battle force. The Navy is smaller today than it has been in the last 99 years. Maintaining these deployment levels as ships have been retired has taken a significant toll on our Sailors and their families, as well as on our equipment.

The second factor degrading Navy readiness is the result of several years of constrained funding levels for our major readiness accounts, largely due to fiscal pressures imposed by the Budget Control Act of 2011. Although the Bipartisan Budget Act of 2015 provided temporary relief, in fiscal year 2017 the Navy budget was \$5 billion lower than in fiscal year 2016. This major reduction drove very hard choices, including the difficult decision to reduce readiness accounts by over \$2 billion this year.

The third primary driver of reduced readiness is the inefficiency imposed by the uncertainty around when budgets will actually be approved. The inability to adjust funding levels as planned, or to commit to longer-term contracts, creates additional work and drives up costs. This results in even less capability for any given dollar we invest, and represents yet another tax on our readiness. We are paying more money and spending more time to maintain a less capable Navy.

We have testified before about the maintenance and training backlogs that result from high operational tempo, and how addressing those backlogs has been further set back by budget cuts and fiscal uncertainty. Our attempts to restore stability and predictability to our deployment cycles have been challenged both by constrained funding levels and by operational demands that remain unabated.

Although we remain committed to return to a seven month deployment cycle as the norm, the need to support the fight against ISIS in 2016 led us to extend the deployments of the *Harry S Truman* and *Theodore Roosevelt* Carrier Strike Groups to eight and eight and a half months, respectively. Similar extensions apply to the Amphibious Ready Groups which support Marine Expeditionary Units. This collective pace of operations has increased wear and tear on ships, aircraft and crews and, adding to the downward readiness spiral, has decreased the time available for maintenance and modernization. Deferred maintenance has led to equipment failures, and to larger-than-projected work packages for our shipyards and aviation depots. This has forced us to remove ships and aircraft from service for extended periods, which in turn increases the tempo for the rest of the fleet, which causes the fleets to utilize their ships and airframes at higher-than-projected rates, which increases the maintenance work, which adds to the backlogs, and so on.

Reversing this vicious cycle and restoring the short-term readiness of the fleet will require sufficient and predictable funding. This funding would allow our pilots to fly the hours they need to remain proficient, and ensure that we can conduct the required maintenance on our ships. It would also enable the Navy to restore stocks of necessary parts, getting more ships to sea and better preparing them to stay deployed as required.

NAVAL SHIPYARDS

One of the key components of Navy readiness for our public and private repair shipyards is our ability to effectively plan and execute maintenance on ships and submarines. This is reflected in the Navy's Optimized Fleet Response Plan (OFRP), which places maintenance at the beginning of the OFRP cycle in recognition of the fact that our deployed readiness is dependent on our ability to complete the required maintenance on time and on schedule before ships enter their training and deployment cycle. As the Vice Chief of Naval Operations testified last month, our shipyards are struggling to deliver ships out of availabilities on time and back to the Fleet. When we do not get it right it strains our ability to train and deploy our forces.

Naval Sea Systems Command's number one priority is the on-time delivery of ships and submarines to the Fleet. At any given time, about one-third of the Navy's Fleet is undergoing either a major depot maintenance availability in one of our four Naval Shipyards and private sector surface ship repair shipyards or conducting pier side intermediate maintenance. Regardless of where the work is taking place, NAVSEA is working every day to improve maintenance throughput so that our warfighters have the platforms and weapon systems they need to defend our nation.

Our long term success in delivering ships and submarines out of maintenance on time depends on three important elements: determining the full maintenance requirement, aligning the maintenance budget to this requirement so we can match the capacity in our shipyards to the workload, and improving the overall productivity of our maintenance workforce through improved training, processes, tools and infrastructure.

Long-term continuing resolutions, as we have seen over the past eight years, coupled with a constrained budget environment have exacerbated our ability to effectively plan and execute ship maintenance. Receiving the complete budget mid-way through the year leads to significant inefficiencies, such as delays in material and parts procurement for future availabilities, and results in significant missed opportunities in the year of execution. A stable, predictive funding environment is imperative to support the effective planning and preparations for both current and future maintenance requirements.

The high operational tempo in the post 9/11 era combined with reduced readiness funding and consistent uncertainty about when these reduced budgets will be approved have created a large maintenance mismatch between the capacity in our public shipyards and the required work. This has resulted in a large maintenance backlog which has grown from 4.7 million man-days to a planned 5.3 million man-days between 2011 and 2017. Today, despite hiring 16,500 new workers since 2012, Naval Shipyards are more than 2,000 people short of the capacity required to execute the projected workload, stabilize the growth in the maintenance backlog and eventually eliminate that backlog. This shortfall, coupled with reduced workforce experience levels (about 50 percent of the workforce has less than five years of experience) and shipyard productivity issues have impacted Fleet readiness through the late delivery of ships and submarines. The capacity limitations and the overall priority of work toward our Ballistic Missile Submarines (SSBNs) and Aircraft Carriers (CVN) have resulted in our Attack Submarines (SSNs) absorbing much of the burden, causing several submarine availabilities that were originally scheduled to last between 22 and 25 months to require 45 months or more to complete. These delays not only remove the submarines from the Fleet for extended periods of time, but also have an impact on the crews' training and morale. This situation reached a boiling point this past summer when in order to balance the workload, the Navy decided to defer a scheduled maintenance availability on the USS *Boise* (SSN 764) that will effectively take her off line until 2020 or later. Although the Navy has not made a final decision on *Boise*, she will likely be contracted to the private sector at additional cost to the Navy in 2019.

The Naval Shipyards have seen a large influx of new hires over the past five years. As of today, half of my public shipyard workers have less than five years' experience. With further growth anticipated in the coming years, we are taking steps to accelerate the training process. For example, all Naval Shipyards have implemented, and are expanding the use of, Learning Centers with realistic mockups in a "safe-to-learn" environment. New employees are now able to support shipyard-unique work within one to four months of being hired, rather than one to two years under traditional training methods.

In addition to hiring enough people to execute the workload, we must also invest in our Naval Shipyard infrastructure. Many of our Naval Shipyards have buildings and equipment that are degraded or obsolete. With today's exceptionally complicated ships and systems, we are finding that our infrastructure does not meet the needs

of a modern day repair facility. NAVSEA has identified future facility modernization and improvements required to support newer classes of ships, including the *Virginia*- and *Columbia*-class submarines and *Gerald R. Ford*-class aircraft carriers. The Naval Shipyards' outdated Information Technology and Cybersecurity departments are also a critical component of this effort.

The challenges faced by the private sector yards that perform maintenance on our surface ships are very similar to our Naval Shipyards. They, even more than the Naval Shipyards, are impacted by the uncertainty around when budgets will actually be approved. Despite these challenges, we have seen improvements in private sector maintenance. We are driving stability into our processes by working with third-party planners to increase our ability to conduct advanced planning, and the shift to competitively awarded fixed-price contracts has reduced cost and added discipline to the process that has limited growth and improved on-time performance by 40 percent since 2014.

Although we face many challenges, they are not insurmountable. Years of sustained deployments and uncertain funding have created a readiness debt that we must begin to address today. In our Naval Shipyards and private sector, that begins with defining the full maintenance requirement, matching the budget to that requirement, ensuring the capacity to perform work matches the workload, and improving the productivity of our workforce. We can and we must tackle each of these issues today and sustain that focus into the future. Only then will we provide the readiness required of our Navy today and into the future.

NAVAL AVIATION FLEET READINESS CENTERS

The Navy and Marine Corps are addressing Naval Aviation readiness through seven inter-related Lines of Effort (LOE)—(1) Fleet Readiness Center (FRC) Capability and Capacity, (2) Depot-level In Service Repair of aircraft, (3) FRC Supply and Component Repair, (4) Aircraft Utilization, (5) Aircraft Material Condition, (6) Flight Line Supply, and (7) Flight Line Maintenance.

Sustained improvement in the readiness of our Naval Aviation forces requires successful execution of multiple ongoing activities across each of these LOEs.

Full and predictable resourcing of these readiness improvement LOEs is essential to re-building Naval Aviation readiness to the level required to support COCOM mission execution objectives.

Specifically, we must maintain a focus on (1) investment in the facilities and workforce at our FRCs, (2) achieving full funding of our "enabler" sustainment accounts (listed at end of this statement), and (3) maximizing funding for supply support.

Naval Aviation's FRCs execute Maintenance, Repair and Overhaul (MRO) activities for a broad range of Aircraft, Engines, Components and Support Equipment (SE)—providing these products directly to our sailors and marines in support of mission readiness. The capability and capacity of our FRCs are still recovering from prior years of limited sustainment account funding, and effects of fiscal year 2013 sequestration driven furloughs and associated hiring freeze. While working to regain previous levels of output on all product lines, meeting production throughput requirements remains challenged by an increased workload demand driven by the degraded material condition of inducted aircraft and components resulting from 16 years of war-time activity combined with the effects of extending aircraft service lives.

To increase production output by reducing turn-around-time, our FRCs are implementing continuous process improvement initiatives, including best commercial practices such as Critical Chain Project Management, across all of our aircraft and component production lines.

In fiscal year 2017 our FRCs are increasing their workforce size as a continuation of recovery from fiscal year 2013 reductions and in direct response to increased aircraft and component workload. Approved exemptions to the current hiring freeze for depot artisan and production support personnel is enabling us to continue hiring; however, normal workforce attrition, regional competition with industry, and regional economic conditions combine to challenge our hiring plans in some locations.

Two issues that will continue to negatively impact our ability to meet current and future FRC workload demand are (1) aging facilities and support equipment, and (2) predictability of funding. Accurate planning of FRC workload requirements 12–24 months in advance is critical to ensuring we have the right people, facilities, and tooling in place when an aircraft or component enters the MRO process. The long term continuing resolutions we have faced in recent years, particularly when already operating in a very constrained funding environment, directly impact our abil-

ity to effectively plan, and then efficiently execute, aircraft and component repair schedules.

Creating a path to full resourcing of those accounts which support FRC production and overall aircraft readiness on the flight line is critical. These accounts support activities ranging from procurement of new and repaired spare parts to maintaining the currency of technical and repair manuals used in the FRCs and on the flight line. As we have painfully experienced over the last 5–7 years, being underfunded and “unbalanced” in these accounts has resulted in significantly decreased flight line readiness.

The maintenance, engineering, and logistics professionals working at our FRCs and supporting sustainment efforts across Naval Aviation, including our sailors and marines on the flight line, continue to do an amazing job of optimizing readiness within the constraints of aging equipment, increasing demand, and constrained / uncertain resources. We look forward to working with Congress to remove barriers to their success.

Naval Aviation Sustainment Accounts

Flying Hour Program (1A1A/1A2A)—Aviation Depot Level Repairables, consumables, fuel Air Systems Support (1A4N)—Engineering Investigations, tech pub updates, maintenance planning, Reliability Centered Maintenance, Bill of Material updates, etc

Aircraft Depot Maintenance (1A5A)—Scheduled aircraft, engine, component repairs; In-Service Repairs

Aircraft Depot Operations (1A6A)—Cost Reduction Initiatives, Preservation

Aviation Logistics (1A9A)—Performance Based Logistics / Contractor Logistics Services for F-35, V-22, E-6, KC-130

Technical Data and Engineering Services (1A3A)—Field tech reps, Maintenance Readiness Teams

Equipment Maintenance (1C7C)—Support equipment rework, calibration of test equipment

Aviation Spares (APN-6)—Procurement of interim and outfitting spares

We will now hear from Lieutenant General Michael Dana, U.S. Marine Corps and Deputy Commandant Installations and Logistics for the Marine Corps.

STATEMENT OF LIEUTENANT GENERAL MICHAEL G. DANA, USMC, DEPUTY COMMANDANT, INSTALLATIONS AND LOGISTICS, UNITED STATES MARINE CORPS

LtGen DANA. Thank you, Chairman Inhofe, Ranking Member Kaine, distinguished Senators.

The first thing I would like to start off with is a thank you. I have Master Gunnery Sergeant Baughman here. That is 25 years of Marine Corps experience. I have 36 years.

What I want to pass to you is, in this entire time I have been in the Marine Corps, the American people and Congress have taken care of us. Everything from Desert Storm to Somalia, to Iraq and Afghanistan, we have gotten everything we need, and we greatly appreciate the support.

I wanted to preface my comments by saying that, because we do have a few asks. We are combat ready to go. We are the fight tonight force. But there are four things I would like to cover quickly.

First, the accelerated aging of our equipment set. I said to Senator Kaine yesterday, normally vehicles, MTRVs [Medium Tactical Vehicle Replacements], trucks that would go 1,200 to 1,500 miles in a peacetime environment, we were racking up 15,000 to 18,000 miles per vehicle, so that accelerated aging induces a cost.

Good news for the depot. Senator Perdue, sir, thanks for the great support there. But it generates work.

Second is the complexity of today’s systems. If you look at when I came in, in 1982, an M151 jeep, very simple, four cylinders, 16

to 18 miles a gallon. The problem was it was not very survivable, so we came up with the MRAP [Mine-Resistant Ambush Protected].

But the MRAP is a system of systems, and many of the combat platforms we have today are systems of systems, so you need more maintenance, more technicians, more money to keep those systems moving.

Next is the gradual decline in depot funding. We appreciate, we greatly appreciate, the 80 percent that we get, in some cases 84 or 88. But we are very confident in our requirements. So when we generate 100 percent requirement for our equipment set, anything less than that leads to a gradual decline in readiness for that year.

Last is the decline of our facilities. We have 29,000 facilities in the Marine Corps; 4,300 of those are in poor or fair condition.

Like the Commandant, because he is the Commandant, he has a plan, and we are executing that plan. It is an installation reset strategy, which I talk to you more in detail more later, sir. But the bottom line is, he wants us to help ourselves before we ask you for help. So when we come to you for requirements, sir, it is a hard and fast, fact-based requirement.

I look forward to the questions. Thanks for having us here today. [The prepared statement of Lieutenant General Dana follows:]

PREPARED STATEMENT BY LIEUTENANT GENERAL MICHAEL G. DANA

Lieutenant General Dana was promoted to his current rank and assumed his duties as Deputy Commandant for Installations and Logistics in September 2015.

Lieutenant General Dana was commissioned a Second Lieutenant in June of 1982 following graduation from Union College in Schenectady, New York.

From 1983–1986, Lieutenant General Dana was assigned to 2nd Tank Battalion, deploying with Battalion Landing Team 1/8 to the Mediterranean. In 1986 he was assigned as the Combat Cargo Officer aboard USS *Duluth* (LPD-6), deploying to the Western Pacific with Battalion Landing Team 1/9 embarked.

From 1988–1991, Lieutenant General Dana served as the Logistics Officer for Battalion Landing Team 3/1 and as a company commander and S-3 with 1st Landing Support Battalion from 1992–1994 (Desert Storm/Operation Restore Hope). From 1996–1999 he served with the Standing Joint Task Force at Camp Lejeune, as an ISAF Plans Officer in the Former Republic of Yugoslavia and as the II MEF G-4 Operations Officer. After a tour with MAWTS-1, Lieutenant General Dana commanded MWSS-371 from 2000–2002.

From 2003–2005 he was assigned to III MEF, serving as the G-7/3D MEB Chief of Staff, III MEF Deputy G-3, and OIC of the MARCENT Coordination Element at Camp Arifjan, Kuwait.

From 2005–2007, Lieutenant General Dana commanded MWSSG-37, including a deployment to Iraq from 2006–2007. From 2010–2012 Lieutenant General Dana served as the Commanding General, 2d Marine Logistics Group, including a deployment to Afghanistan from 2011–2012. He was then assigned as the Assistant Deputy Commandant for Logistics (LP) until October 2012.

Joint assignments include service with EUCOM, NORTHCOM and, most recently, PACOM. Lieutenant General Dana is a graduate of Amphibious Warfare School, Marine Corps Command and Staff College, School of Advanced Warfighting and the Naval War College.

INTRODUCTION

Chairman Inhofe, Ranking Member Kaine and distinguished members of the Senate Armed Services Subcommittee on Readiness, thank you for the opportunity to appear today and to report on the readiness of your United States Marine Corps.

I have the privilege to lead an Installations & Logistics (I&L) team that delivers the installations, logistics, and ground equipment readiness that ensures the Marine Corps remains capable of “Making Marines and Winning our Nation’s Battles”. We are grateful for the continued support of Congress and of this subcommittee for your appreciation of this pivotal role to our nation’s defense and in ensuring we remain ready when the nation is least ready.

YOUR MARINE CORPS TODAY

Today, your Marine Corps continues to operate at the same tempo as it has over the past 15 years. With a dynamic and complex operating environment, the Joint Force requires and actively employs our expeditionary capabilities. During the past year, your marines executed approximately 185 operations, 140 security cooperation events with our partners and allies, and participated in 65 major exercises. Nearly 23,000 marines remain stationed or deployed west of the International Date Line to maintain regional stability and deterrence in the Indo-Asia-Pacific region. Our Marine Expeditionary Units (MEUs) support the joint force by executing counterterrorism (CT) operations in Iraq and North Africa, providing humanitarian assistance and disaster relief (HA/DR) support in Japan and Haiti, and remain forward deployed to respond to crises and emerging threats.

MARINE CORPS RISK

As we operate around the globe today, fiscal constraints and instability have impacted our readiness. As resources have diminished, the Marine Corps has protected the near-term readiness of its deployed and next-to-deploy units in order to meet its operational commitments. Since the conclusion of OIF and OEF, the Marine Corps has not had the benefit of an “inter-war” period to reconstitute and modernize our force. Fifteen years of continuous combat has placed tremendous stress on the force, our Installations, our equipment, and our readiness.

INSTALLATION AND LOGISTICS OVERVIEW

In support of Marine Corps operations, our bases and stations are collectively the “launching pad” that produces and deploys ready, trained forces. Further, our enterprise ground equipment management efforts provide an end-to-end, total life cycle process to account for and maintain-sustain our gear to ensure a high state of readiness.

In terms of total Marine Corps Force serviced on our Installations, there are over 180,000 marines, 176,000 dependents, 29,000 civilians, and 140,000 retirees. The support ranges from 23,000 housing units, 600 barracks, 56 fitness centers, 43 child development centers, 5,284 miles of road, 146 hangars, 58 runways and close to 15,000 buildings. We are responsible for the management of a \$3.8 Billion annual portfolio of programs, systems, and projects in support of marines and their military equipment and supplies valued at over \$30 billion and real property valued at over \$70 billion.

INSTALLATION RISK AND CONDITION

The state of facilities is the single most important investment to support training, operations, and quality of life. The Marine Corps has 24 bases and stations valued at over \$52 billion. We greatly appreciate the approximately \$1.5 billion a year we received from 2007–2014; this investment supported new barracks, new aviation platforms, and improvements to our infrastructure. However, since 2015 our MILCON budget has averaged approximately \$570 million per year, well below our requirements. Based on the current fiscal landscape, we foresee \$5.4 billion in requirements with only \$1.1 billion in available funding over the next 6 years. At the current level of investment, it would take over 204 years to recapitalize our infrastructure.

In addition to MILCON funding, our installations require the requisite amount of Facilities, Sustainment, Restoration, and Modernization (FSRM) money. Due to historic funding challenges, we have seen our FSRM backlog grow to \$9 billion. The effect of this shortfall is that of 29,000 facilities in the Marine Corps, 15 percent or 4,300 facilities are in poor or failing condition. Overall Facilities Condition Index (FCI) across the Marine Corps is 82 percent (Fair).

At current funding levels, we are able to complete new construction projects supporting the “Rebalance to the Pacific”, the fielding of new aviation platforms such as the F-35 and V-22, and renovating some of our worst barracks; however, without additional investments there will be long term impacts on support to training, operations, logistics, and ultimately readiness. Many projects to replace existing inadequate and obsolete facilities that directly support operational forces are unaffordable. We are deferring critical infrastructure required to support training, operations, and logistics.

To offset these challenges, the Commandant of the Marine Corps signed an Infrastructure Reset Strategy in November 2016 to reverse the ongoing decline in Marine Corps Facilities

condition and close the growing gap between facilities requirements and available resources. The Commandant's vision is to sustain infrastructure and installations as capable, resilient, right-sized platforms to generate force readiness and project combat power.

Although we have a comprehensive strategy, we will continue to prioritize investment of limited resources based on mission and condition. Further, current levels of investment will cause the condition of our facilities to degrade as we defer sustainment and it will lead to more costly repairs and restoration costs. We do appreciate the additional \$154 million provided this year for hangars at Miramar. We would appreciate Congress' continued support of our optimization and modernization efforts.

GROUND EQUIPMENT RISK AND CONDITION

The prioritization of current readiness also comes at the expense of equipment modernization, which equates to future readiness. Further, the high op-tempo of the last 15 years of operations has strained our equipment set and has caused accelerated aging. While our equipment has performed well, the dual challenges of equipment age and continued wear-and-tear has led to ground equipment readiness challenges. Adequate maintenance funding is stretched to maintain readiness across the depth of the force.

Due to the tremendous support of Congress, the reset of our equipment is 92 percent complete. While this is a significant accomplishment, the constrained fiscal environment has prevented us from reconstituting and modernizing the force. Our most important ground legacy capabilities continue to age as modernization efforts are not moving quickly enough.

We have extended the service life of older platforms such as the Light Armored Vehicle (LAV) and Amphibious Assault Vehicle (AAV) well beyond expected retirement dates; both platforms remain operational due to the extraordinary sustainment efforts of our marines and civilians, as well as continued investment in service-life extension programs. Our AAVs are now more than four decades old. Our AAV Survivability Upgrade (SU) Program will sustain and marginally enhance the capability of the legacy AAV, but this does not remove the need to modernize this nearly obsolete platform. Additionally, the average age of LAVs within our inventory is 26 years; the oldest vehicle is 34 years old. As of today, there is no program identified to replace this capable, but outdated platform and we continue to incur increasing costs to extend its life.

Although resourcing of depot and field level maintenance has kept pace with requirements over the last decade with both baseline and OCO funding, sufficient funding is required in the future to maintain ground equipment readiness due to the aging of our equipment. Four critical weapon systems (AAV, LAV, Tank, and M777 Howitzer) account for approximately 70 percent of the Marine Corps' depot maintenance budget and these costs are steadily rising. For instance, the AAV depot sustainment plan cost \$49 million in fiscal year 2011 and now costs \$82 million.

Our High Mobility Multipurpose Wheeled Vehicles (HMMWV) is another example of the ground equipment readiness challenges we face today. Thirty years ago, the HMMWV was not developed through the prism of asymmetric warfare and improvised explosive devices (IED). Increased weight on the chassis with the armored variant and a challenging operating environment has led to higher sustainment costs. Continued support for our procurement requests to purchase the Joint Light Tactical Vehicles (JLTV) to replace our HMMWVs is appreciated. Another challenging subset of equipment is high demand/low density (HD/LD) items, primarily communication assets and specialized tool sets, which support the ability of units to operate in dispersed locations.

Our Depot Production Plants at Albany and Barstow are an essential component to our ground equipment readiness strategy and have been instrumental in maintaining the readiness of our equipment. However, we can only fund our depot maintenance account to 80 percent of the identified requirement which has led to a backlog. To offset this, we are instituting a refined conditions based methodology to better inform future maintenance actions.

Our constrained maintenance funding has made it difficult to keep up with the level of maintenance required. Critical, aging weapons systems, such as tanks, AAVs, and artillery, are increasingly costly to maintain resulting in readiness levels near 70 percent. To maintain readiness levels across our entire equipment set, available readiness funding is stretched. Your support of our readiness funding requests will improve combat equipment availability in support of operations and training. As we look to the future, our enterprise ground equipment management efforts will

align USMC material requirements with available resources to ensure the Marine Corps is the most cost effective and cost efficient steward of the US taxpayer dollar.

The Marine Corps has a plan to regain and sustain unit readiness; and with your continued support, we can achieve our organizational readiness requirements leading to a balanced Marine Corps that is healthy and is able to train and operate with needed equipment for all assigned missions.

INNOVATION

While we are focused on readiness for today, we are innovating to achieve readiness in the future. We are implementing unmanned platforms, 3D printing and predictive supply/maintenance capabilities to optimize tactical distribution, modernize the supply chain, and increase equipment readiness. Within our Installations, we are moving towards “smart cities” and advanced transportation technologies to reduce operating costs. Across the Installations and Logistics portfolio, we are leveraging the rapid advancements in technology available today. Most importantly, we are committed to delivering these future capabilities to ensure sustainable readiness.

CONCLUSION

On behalf of all of our marines, sailors—many deployed and in harm’s way today—and their families and the civilians that support their service, we thank the Congress and this committee for this opportunity to discuss the key challenges your Marine Corps faces. Your support of our funding requests will provide the “ready bench” our Nation requires and the infrastructure the force needs to train and sustain itself. Our future readiness relies upon sufficient procurement and modernization funding. With the support of the 115th Congress, we will move forward with our plan and vision to ensure your Marine Corps is organized, manned, trained and equipped to make marines and win our Nation’s battles.

Senator INHOFE. Thank you, General Dana.

Now Lieutenant General Lee Levy II, United States Air Force, Commander of the Air Force Sustainment Center, United States Air Force Materiel Command, and very busy at Tinker Air Force Base.

STATEMENT OF LIEUTENANT GENERAL LEE K. LEVY II, USAF, COMMANDER, AIR FORCE SUSTAINMENT CENTER, UNITED STATES AIR FORCE MATERIEL COMMAND

Lt. Gen. LEVY. Good afternoon, Chairman Inhofe, Ranking Member Kaine, distinguished members of the subcommittee. Like General Dana and my colleagues to the right, thank you for allowing us this opportunity to testify before you on the readiness of our United States Air Force.

On behalf of our Acting Secretary, the Honorable Lisa Disbrow, and our Chief of Staff, Dave Goldfein, thanks for your support and demonstrated commitment to our airmen, our Air Force civilian families and veterans.

Without apology, your United States Air Force has delivered global vigilance, global reach, and global power for the Nation. We are always in demand, and we are always there. We supported joint and coalition forces throughout every operation, and we have secured the homeland through continuous surveillance and air defense.

We have done all this with a force that is now 30 percent smaller than at the outset of Desert Storm and aircraft and infrastructure that continues to age and present new challenges. Literally, we are finding ways to do more with less.

Your total force airmen, Active Duty, National Guard, Air Force Reserve, and our dedicated civil servants, are amazing, and they continue to seek new and innovative ways to get the job done.

Make no mistake, your United States Air Force is ready to fight tonight. But I am concerned about our ability to sustain our Air Force to fight tomorrow.

Threats to the Nation and our vital national interests continue to evolve and adapt present formidable challenges that threaten us and our allies. As we develop advanced airspace and cyber capability for tomorrow, we must continue to adapt our readiness, sustainment, and logistics enterprise as well.

As General Wyche said, the organic industrial base is the Nation's insurance policy. It underpins our readiness to fight not only tonight but be prepared to fight and sustain into the future. The Air Force Sustainment Center underwrites this for our Air Force joint partners and allies.

Our command has responsibility for nuclear sustainment and supply chain management for two-thirds of the Nation's nuclear triad. Nuclear deterrent operations are the bedrock of our national security.

Our command also has responsibility to set, open, and sustain theaters in times of peace and conflict, and we are doing this with weapons systems across our Air Force that are on average age 27 years old.

The defense industrial base is brittle. We find an ever-diminishing vendor base for sustaining our platforms and increasing challenges recruiting the kind of talent our Air Force simply must have for the future. A fifth-generation Air Force must have a fifth-generation workforce.

From the logistics sustainment portfolio perspective, all of the service destinies are interconnected. This is not a zero-sum game. Our Nation's warfighting capabilities rise and fall together. We all must be fully functioning teammates. When we enter the battlespace, we rely on one another.

For example, at Tinker Air Force Base, headquarters of the Air Force Sustainment Center, we are home for and sustain the Navy E-6B Mercury fleet. We are a critical link in our Nation's nuclear command-and-control architecture. We ship munitions from McAlester Army Ammunition Plant, from Tinker Air Force Base.

You may be familiar with the boneyard at Davis-Monthan Air Force Base in Arizona. While some call it that, I prefer to think of it as a national reservoir of aerospace capability.

To that end, they are regenerating their F-18s from long-term desert storage to help with the Department of Navy's TACAIR [Tactical Air Support] challenges that you heard about a moment ago, while our team at Warner Robins Air Logistics Complex just outside of Macon, Georgia, are working hard making wing spars for that hard-to-replace-part for the F-18 in a public-private partnership to help the Department of Navy readiness.

I could offer dozens more examples. While logistics and sustainment by itself will not win a war, it will absolutely lose you a war.

The airmen of the Air Force Sustainment Center are predominantly civilian. Our ability to hire takes months due to an antiquated hiring system. In an era when software engineers are becoming as essential to weapons systems sustainment as jet engine

technicians, we simply must have a better system for recruiting and hiring our total force airmen for tomorrow.

We compete with industry for a scarce commodity, STEM [science, technology, engineering, and mathematics] graduates that the Nation already does not produce enough of. This competition for talent has readiness implications for today and for tomorrow.

Our Nation needs to increase its investment in force structure, readiness, and modernization. We find when we do that, we have a full-spectrum ready airspace and cyber force to meet today's challenges and tomorrow's.

Our citizens expect this from us. Our combatant commanders require it of us. With your continued support, our airmen and your United States Air Force will continue to deliver it.

Thank you for having us today, and I very much look forward to your questions.

[The prepared statement of General Levy follows:]

PREPARED STATEMENT BY LIEUTENANT GENERAL LEE K. LEVY, II

INTRODUCTION

Chairman Inhofe, Ranking Member Kaine, distinguished Members of the Subcommittee, thank you for the opportunity to testify on the readiness of your United States Air Force. On behalf of our Acting Secretary, the Honorable Lisa Disbrow, and our Chief of Staff, General David Goldfein, thank you for your support and demonstrated commitment to our airmen, Air Force civilians, families, and veterans.

This year the United States Air Force celebrates its 70th birthday. Since established as a separate service in 1947, our Air Force has secured peace through the full spectrum of conflict with a decisive warfighting advantage in, through, and from air, space, and cyberspace. Since Desert Storm in 1991, for the past 26 years, we have been operating in a continuous state of combat and combat support. Essentially, we have been in a steady state of war for the last 37 percent of the history of our service. Without pause, the United States Air Force has delivered global combat power to deter and defeat our nation's adversaries; we supported joint and coalition forces at the beginning, middle, and end of every operation; and we have secured our homeland through continuous surveillance and air defense. We have done all of this with a force that is shrinking in size, with a fleet that is now an average age of 27 years old, and infrastructure that continues to age and present new challenges. But our Total Force Airmen—Active Duty, National Guard, Air Force Reserve and our dedicated civil servants—are amazing and they will continue to seek new and innovative ways to get the job done. Make no mistake, the United States Air Force is ready to fight tonight, but I am concerned about our ability to sustain our Air Force to fight tomorrow. Threats to this nation and our interests continue to evolve, adapt, and present formidable challenges that threaten our nation and our allies. As we develop advanced air, space, and cyber capabilities for tomorrow, we must continue to adapt our readiness, sustainment, and logistics enterprise as well.

As the Commander of the Air Force Sustainment Center, I am extremely proud to represent the nearly 43,000 Total Force Airman across 23 locations in 18 states and several overseas locations that are laser focused on providing the best sustainment and logistics capabilities for the available funding to meet the challenges of tomorrow. Literally, we are finding ways to do more with less.

Since its creation as part of Air Force Materiel Command's reorganization in 2012, the Air Force Sustainment Center has delivered combat power for America through a globally integrated, agile logistics and sustainment machine spanning from factory to flight line and back, representing and supporting all aspects of Logistics. We directly support every combatant commander, service, and many inter-agency partners as well as 63 allied countries with depot-level maintenance, supply chain management, and power projection for legacy and 5th generation weapons systems. By achieving the right results the right way through our disciplined "Art of the Possible" leadership and constraints-based management methodology, we continue to yield significant results. Since 2013, we significantly reduced by an average of 70 days each the time it takes to inspect, repair, and return bomber, fighter, mobility, and special mission aircraft to operational units. Across the entire Air Force

Sustainment Center, we delivered back to the operational commands 69 more aircraft in fiscal year (FY) 2016 than fiscal year 2012 and we reduced critical parts shortages by 28 percent from fiscal year 2012 to fiscal year 2016. Since 2013, through cost savings or cost avoidance, the Air Force Sustainment Center has returned \$2.4 billion to the Air Force to invest in other areas of readiness or modernization. But we cannot continue to rely on savings within our current budgets to fund our future modernization and sustainment requirements.

The Air Force Sustainment Center is more than the three “depots” in Georgia, Utah, and Oklahoma. Our world-class Air Logistics Complexes at Robins, Tinker, and Hill Air Force Bases are interconnected “engines of readiness” for the Air Force as well as joint partners and allies, and they work as one team to deliver combat effects. The Active Duty, Reserve, Guard, civilian, and contractor airmen that make up the Air Force Sustainment Center deliver combat power to warfighters by adding service life to weapons systems and creating additional capabilities through modernizations and upgrades.

Additionally, the Air Force Sustainment Center is the Air Force global supply chain manager for planning, sourcing, managing, and delivering over \$8 billion of parts annually to the combatant commands. As both the wholesale and retail provider of supplies and parts, the supply chain is the shock absorber for Air Force readiness.

The Air Force Sustainment Center is critically involved in, and essential to, sustaining our nation’s nuclear enterprise—not just for the United States Air Force but for the United States Navy as well. This mission area is our number one responsibility and our sustainment of components for each leg of the nuclear triad is vital to our nation maintaining a credible nuclear deterrent. We directly enable bombers, inter-continental ballistic missiles, dual capable fighters, air launched cruise missiles, and Navy command and control aircraft that communicate with submerged nuclear assets.

To continue to provide Air, Space, and Cyber supremacy in today’s evolving global security environment, our Air Force requires sustained, long-term, and predictable funding. If Budget Control Act-level funding returns in fiscal year 2018, it will have severe impacts on our airmen and readiness. The most important actions this Congress can take to ensure the world’s most powerful Air Force will continue to dominate the skies tomorrow will be to repeal the 2011 Budget Control Act and ensure sufficient funding to modernize our weapons systems and infrastructure. We appreciate your support to build the force up to about 321,000 in 2017, yet we will remain stretched to meet national security requirements. We are currently working with the Secretary of Defense to develop the fiscal year 2018 Presidential Budget to address manning shortfalls in key areas. We must increase our Active Duty, Guard and Reserve manning levels in key skill areas to meet the emerging mission requirements while continuing to support enduring combat operations.

CHALLENGES TO READINESS

The Air Force Sustainment Center—with its organic industrial base—is the nation’s readiness and war sustaining insurance policy. We are proud to sustain America’s first and most agile response to crisis and conflict, underwriting every joint operation. We provide critical enablers in the air, space, and cyber domains and those demand signals are going to continue to increase over time. But we continue to experience significant readiness challenges in funding, workforce hiring, and aging infrastructure and weapon system sustainment.

Recently, the Vice Chief of Staff of the United States Air Force, General Wilson, testified to this committee and stated: “. . . being ‘always there’ comes at a cost to our airmen, equipment, and infrastructure; we are now at a tipping point. Sustained global commitments combined with continuous fiscal turmoil continue to have a lasting impact on readiness, capacity, and capability for a full-spectrum fight against a near-peer adversary.” Those costs have unique implications within the Air Force Sustainment Center.

CIVILIAN WORKFORCE HIRING INITIATIVES

The Air Force Sustainment Center depends on a 79 percent civilian workforce. Our civilian airmen bleed equally blue as those that wear our uniforms and they serve and sacrifice for our nation as well. As we evolve and adapt our weapons systems and concepts of operations, we must evolve and adapt our workforce. A 5th Generation Air Force requires a 5th Generation workforce. Requirements for a Science-Technology-Engineering-Math (STEM) educated workforce and advanced manufacturing and technical skills are ever increasing. We no longer just buy airplanes; we buy highly integrated, sophisticated software packages that come in so-

phisticated airframes. Each weapon system we procure brings with it an increasing requirement for software development and maintenance to perform almost every function on the aircraft, from controlling flight controls, interfacing with weapons, navigation and communication, recording system health and status, etc. All of this “cyber” capability must be designed so it is resilient to sophisticated cyber warfare. Our requirements for scientists and engineers to sustain these software-intensive weapons systems are increasing dramatically. In addition to developing and sustaining new weapons systems, our engineers must also find ways to sustain our aging legacy systems. From understanding airframe stress, metallurgy, non-destructive inspection techniques, and reverse engineering parts, it takes a talented pool of engineers to help us sustain our legacy Air Force. As we bring new weapons systems on line and continue to sustain our legacy fleet, our civilian engineers are a pivotal component of readiness. As we project a steady increase in the technical workforce needed to support critical warfighting systems, any government actions that make it more difficult to recruit and retain a skilled workforce are detrimental to our readiness.

An antiquated civilian hiring system also constrains our ability to effectively compete with industry for a qualified workforce. The ability to hire engineers to sustain our Air Force is a strategic issue for our nation. We are experiencing a sustained annual growth in our requirements for the number of software engineers by 10–15 percent. While we aggressively try to hire qualified engineers, we simply cannot get enough qualified applicants to meet our demand. Most recently, to hire 465 new scientists and engineers, we expanded our recruiting efforts across 85 universities in 24 states. This year, our hiring target is 528 new scientists and engineers. To meet this growing demand, we continue to devote significant resources to our recruiting efforts. However, over the past two years, we did not meet our hiring goals, resulting in being short 569 hires at the end of fiscal year 2017. Without these engineers, our ability to sustain our Air Force today and into tomorrow is in jeopardy. Our nation’s Air Force is rapidly transitioning into an information-age fighting force and our ability to sustain and rapidly modify key software in our weapons systems will prove to be a decisive capability in the conflicts of tomorrow.

Two key programs have yielded great benefits in hiring and retaining our scientist and engineer workforce. First, the Defense Acquisition Workforce Development Funds have been a valuable resource supporting our efforts to recruit, hire, retain, train, and develop our scientist and engineer workforce. Second, last year, the Air Force Materiel Command implemented the DOD Civilian Acquisition Workforce Personnel Demonstration Project (AcqDemo) for the acquisition workforce, including scientists and engineers. Although we are just getting started, AcqDemo provides vital flexibilities that enable us to offer competitive salaries and compensate our technical workforce according to performance. The Air Force Sustainment Center appreciates your continued support of these programs.

Manning shortfalls impact our ability to keep pace with our current workloads as well as prepare for future workloads like the KC-46A. Our scientist and engineer hiring efforts presume a healthy supply of graduates with the right degrees. Especially in the area of software developers and cyber experts (electrical engineers, computer engineers, and computer scientists) we must continue to expand this pipeline. As a nation, we must continue the full-court press to attract, excite, and educate the next generation of STEM patriots. Last year, volunteers from the Air Force Sustainment Center donated over 6,000 hours to STEM outreach initiatives. Through funding in the Department of Defense for STEM outreach programs, such as STARBASE, we provided \$700,000 in fiscal year 2016 to support competition teams, sponsor events, and do classroom enhancements. Continued fiscal support for K-12 STEM outreach, scholarships, and internships like the DOD SMART scholarship program, will help expand the supply for STEM graduates that will enable the Air Force Sustainment Center to hire the technical workforce we need in the future.

Our workforce challenges are not just with engineers and scientists. We also rely on a very large labor force of highly skilled technicians and mechanics. The populations of trained mechanics is simply not available in the same quantities as in the past. While we work very closely with vocational training centers around our Air Logistics Complexes, we must still rely heavily on former military technicians that separate or retire from Military Service and seek a government civilian position. The 180-day waiting period to hire military retirees also reduces our ability to hire required personnel.

OTHER CHALLENGES

In addition to workforce challenges, the unpredictable state of defense appropriations over the past few years significantly impacts our ability to hire personnel and

work with industry partners. Many companies are not eager to invest in advanced technology or sustain existing sustainment capacity when the future of defense funding is volatile and uncertain. Many talented personnel are deterred from working for the government when they hear about furloughs and other uncertainties. Industry partners are disincentivized to bid on contracts when budgets are unpredictable or it is not cost-effective for them to manufacture small quantities of parts. As a result, we receive fewer bids or “no-bids”, which translates into less competition, increased costs, and operational impacts to our warfighters. A smaller industrial base is also creating diminishing manufacturing and repair sources for many of our aging weapon systems.

The Air Force Sustainment Center works closely with industry leaders to leverage technology and advanced manufacturing and repair capabilities to help us sustain our Air Force. We must lean on industry partners to develop engine test capabilities for the future. We watch major Maintenance Repair and Overhaul (MRO) and Supply Chain companies adapt and evolve to meet the demands of their customers, and we learn what we can from their experiences, while they continue to learn from us. We must continue to reduce barriers to collective innovation that will benefit commercial business as well as government systems. Currently, there are barriers to collective innovation because of statutes that prevent collaboration with industry and academia to utilize depot resources for collaborative problem solving.

SHAPING FUTURE LOGISTICS CAPABILITIES

The future of warfare is hybrid and multi-domain. Air dominance is not a national birthright. Our adversary’s increased capabilities in advanced air defense systems and 5th generation aircraft compel us to find more ways to sustain our Air Force through agility and global integration. Additionally, we currently do not have the ability inside Air Force logistics to deconflict and prioritize competing requirements and then articulate those risks back to the

combatant commanders. This gap presents risk because the responsible combatant commanders must absolutely understand realistic and risk-based options and alternatives to be mission effective. Having multi-domain logistics command and control will help shape operational schemes of maneuver and determine whether or not we have the agility to adapt across multiple domains in multiple geographic locations simultaneously. The necessary processes, decision support tools and visibility are necessary for us to be successful. Our adversaries do not limit their thinking by lines on a map or combatant commander boundaries. Their perspective is hybrid, global, and multi-domain. Our ability to command and control logistics capabilities from opening and sustaining theaters across the globe and resetting the forces will be paramount. Global Logistics agility and the management of scarce assets can only be achieved via a robust global logistics command and control architecture and supporting networks.

The current state of logistics has a theater-centric focus. It is reactive with no common operating picture for logistics, leading to ineffective global asset utilization. The multi-domain logistics command and control is an enterprise-level view of Air Force logistics to optimize warfighter support. By implementing multi-domain logistics command and control, we will no longer think about one combatant command area at a time. It will create complete global asset visibility and decision support tools to best assign and allocate limited global resources to meet immediate theater needs. This new way of operating will allow us to integrate with global and theater planning, articulate risk to the combatant commanders, provide intelligent logistics command and control in anti-access and area denial environments, prioritize and synchronize resources, set and re-set the theaters, and interact with a global distribution network.

We do not currently have a command and control system that allows us to have resilience and mission assurance. This will be essential to the combatant commanders in future warfighting.

CLOSING

The Air Force Sustainment Center continues to deliver combat power to our combatant commanders. We can fight and win tonight. But we must continue to adapt and rely on additional investments and resources to ensure we are ready to deter and defeat potential adversaries tomorrow. As the logistics enterprise evolves and adapts, we must have a multi-domain logistics command and control capability that will be able to utilize limited resources across multiple theaters in multi-domain conflict. High velocity combat support to the warfighter through pre-positioned resources and the ability to swing logistics forces from one point of need to another point of need will be essential. General Eric Shinseki once said, “If you don’t like

change, you'll like irrelevance even less." We, as the Air Force Sustainment Center, simply cannot afford to be irrelevant because the risks are just too great ... the Air Force and the nation rely on us.

Since 1947, the Air Force has relentlessly provided America with credible deterrence and decisive combat power in times of peace, crisis, contingency, and conflict. However, our relative advantage over potential adversaries is shrinking and we must be prepared to win decisively against any adversary. We owe this to our nation, our joint teammates, and our allies. The nation requires full-spectrum ready air, space, and cyber power, now more than ever. America expects it; combatant commanders require it; and with your support, airmen will deliver it.

Senator INHOFE. Thank you, General Levy.

Let's start with you because I can remember, 30 years ago, we were talking about the core competencies and organic capability. At that time, I thought it was rather arbitrary to come up with a 50/50. Well, that was 30 years ago, and we still are 50/50, but it seems to have worked. A lot of people have not stopped to think about why it is necessary to keep this core capability.

So, just briefly, anyone who wants to answer the question as to why it is significant that we have that core capability, feel free to respond.

LTG WYCHE. Senator, I will start with talking about several one-of-a-kind capabilities within the organic industrial base that is unique to our organic industrial base, and that is Watervliet. Watervliet produces large caliber cannon tubes for the Navy, for the Marines. At Fort Sill, Oklahoma, all of the houses there have these gun tubes. Those gun tubes are only made in this hemisphere.

So that is a very unique capability that you just cannot go and get out in industry, and that is why we need to reserve those unique core capabilities within the organic industrial base, Senator.

Senator INHOFE. That is good.

General Levy?

Lt. Gen. LEVY. Yes, sir. So we find 50/50 to be extraordinarily useful, particularly when coupled with the core statute, because we think about what General Wyche said in his opening comments. The organic industrial base is the Nation's insurance policy.

That logistics and sustainment infrastructure exists to provide for the Nation in times of war, to behave as that buffer and ability to surge. When we find there is a healthy relationship between industry and the organic industrial base, what we find is that both sides improve their performance, drive down overall sustainment costs, and deliver best-value capabilities for the warfighter while at the same time preserving that critical insurance policy, if you will, that ability to surge for the Nation.

It also drives—and I mentioned in my remarks the brittleness of the defense industrial base. It also drives a certain level of what I like to sometimes refer to as co-competition, the healthy relationship between commercial firms and the government activities in parts of the marketplace where there might only be one vendor.

Senator INHOFE. Yes. That is a huge point there, because we went through a period of time when we experienced such things. This has been a moving target.

I do appreciate that. It is an insurance policy, I think we will all agree.

For clarification, Admiral, when you were talking about your F-18 program, you were talking about just the Navy and not the Marines. Is that correct?

VADM GROSSEKLAGS. Sir, actually, speaking of both.

Senator INHOFE. You were? Because our testimony that we heard when we had the other hearing, that I referred to in my opening statement, the Marines, 62 percent of their F-18s were down. What kind of percentage do you have, if you exclude those, out of the rest of the Navy?

VADM GROSSEKLAGS. I can tell you that I agree with that number for the Marine Corps. For the Navy, it is comparable.

What I was referring to specific on the comment I made about the depots and kind of reaching the peak of our depots throughput requirement was a difference between outer reporting aircraft, which are in our depots or long-term storage, versus those on the flight line, which is the number that you are referring to.

Of the flight-line aircraft, there are approximately 60 percent of those today that are not—

Senator INHOFE. Yes, I think that is right.

You know, General Levy, Congress was skeptical about the creation of the Air Force Sustainment Center. I think the concerns that were expressed at that time are pretty much answered by this time, but you are the one who was in a good position to respond as to why it is necessary and its success.

Lt. Gen. LEVY. Yes, sir. Thank you for the opportunity to address that.

I will tell you that, from our view, the Air Force Sustainment Center creation has been a tremendous success.

Let's just talk money, for example. In the 4 years since the Air Force Sustainment Center was created and we have begun to operate Air Force logistics as one common enterprise, we been able to return \$2.4 billion back to our United States Air Force. That is validated by the Air Force audit agency. That is money that goes back to addressing readiness and critical modernization challenges that our Air Force has.

From a performance perspective, we have managed to cut flow days and improve safety and quality on all of our platforms. We now have B-1s at the shortest amount of flow days ever. We have now taken over the ability to do things, for example, when businesses go out of existence at Robins. There was a vendor that went out of business that makes critical parts for the C-5. The Air Force Sustainment Center team at the Warner Robins Air Logistics Complex was able to rapidly internalize that and keep the C-5 readiness at the level we need it to be at.

We were able to, for example, with the KC-135, the KC-135 MRO [maintenance, repair and overhaul], go from three sources of repair, two commercial and one organic, to one source of repair, organic. Now every KC-135 in the United States Air Force, about 76 a year, receive their program depot maintenance at the Air Force Sustainment Center at Tinker Air Force Base.

All three of those locations, at Hill Air Force Base, Tinker Air Force Base, and Robins Air Force Base, operate as an enterprise. So if an F-15 comes into Robins for repair, the engine comes to Tinker and the landing gear goes Hill.

By operating as an enterprise, we find efficiencies. We find synergies. We drive our performance. As importantly, we drive down costs to our Air Force.

Senator INHOFE. Yes. It was different. I remember back when they had five ALCs [Air Logistics Centers] and then we made the step down to three, so I think that is very significant. That is an excellent answer.

Senator Kaine?

Senator KAINE. Thank you, Mr. Chair.

A question for Admiral Moore about shipyard challenges. Shipyards are critical to maintaining fleet readiness and also supporting forward presence. While there have been a number of success stories at our shipyards, there are also a lot of challenges that we have heard about: loss of experienced workers, lengthy periods required to rebuild, lost experience, aging infrastructure, and IT systems. I have two questions.

First, what actions is the Navy taking to address long-term challenges at the shipyards that could affect our ability to complete maintenance on schedule? Second, how do we determine and measure the health of shipyard infrastructure? I have heard some of you guys use the term fester factor when describing how a ship is doing, but how do you measure how a shipyard is doing, in terms of being able to perform its maintenance tasks?

VADM MOORE. Yes, sir. Thank you for the question.

So to the first question, I think following the sequester in 2013, we have had a significant challenge, as you discussed, in getting our ships and submarines out on time.

It is a combination of things. We certainly have run the ships hard since 9/11. We have had an inexperienced workforce. To your second question, which I will get to, the infrastructure is really not a 21st Century shipyard infrastructure.

Then, frankly, we just did not have enough people in the shipyards to do the work that was required to get done.

We have taken some significant action over the course of last year. There is more work to be done, and I think we are starting to see the loss days go down a little bit. So, first and foremost, we have to understand what work has to be accomplished on our ships and submarines, so we really have worked hard to go back and look at our class maintenance plans, look at the work that is required, and define what that requirement is, and then go back to the Pentagon and explain to them what work needs to get done.

Then we have to be able to recognize that we just do not have enough workforce in the naval shipyards. So it is not necessarily—it is not just a matter of them working harder. They are great national assets to us, but if you do not have enough workers to get the work done, you are inevitably going to get the ships late.

So we have started to hire. We have hired 16,500 new workers over the last 5 years. We are still about 2,000 people short, and I am working very hard with the CNO to get to that number, and we need to get there.

Along with that is a recognition, as you hire all these people, a young workforce, that you have to get them trained. In the past, it would typically take 4 to 5 years to take a new shipyard worker and get them to kind of a journeyman level where you could trust

them to go work on a nuclear submarine or carrier. Today, we have invested a lot of money in our training system so that a young worker coming in today, it takes them about 1 to 2 years, to the point that they can actually provide real wrench-turning on the ship. I think that is something that is really, really important to us. So improved training and the hiring processes we have.

To your second question on the health of the infrastructure, across-the-board, we have a long list of things that need to get accomplished in the shipyards today. I have to be able to figure out how to go make the case to make the investments in the naval shipyards.

If I am at Newport News Shipbuilding, I incentivize them and they can incentivize themselves to go buy new welding equipment, new cranes, et cetera, because it helps them on the bottom line. It improves their cost performance.

In the naval shipyards, we do not have the same mechanisms. So if you were to go look at the shops and things, you know, I need new welding equipment. I need workflow processes that are better. I need improvements to the dry docks across-the-board.

Those investments in the naval shipyards are going to be an important component to our ability to get the workforce to be more productive. It is pretty hard to demand a worker to get more productive when he is working with tooling that is 15 to 20 years old where his counterpart in the private sector is using something that is a lot more state-of-the-art.

So it is a holistic plan that we have to work across-the-board on. You have raised an important issue with the infrastructure piece. It is something that we have tended to ignore and just focus on getting the right number of people in naval shipyards. But I would argue just getting the right number of people in naval shipyards by itself is not enough. You have to give the workers the tools necessary to get the work done.

Senator KAINE. I just have a minute left. But others, could you weigh in on the workforce challenge?

In other subcommittee hearings, we have heard about losing pilots to commercial aviation. In terms of hiring your own maintenance workers across your various portfolios, do you face increased competition from the private sector? Talk a little bit about the workforce challenges that Admiral Morris just described.

LtGen DANA. Sir, I would say for the Marine Corps, in our depots, we are blessed with a great workforce.

You mentioned this in your opening statement. To keep them, what we are trying to do, and we are actually working on it, is in terms of giving them additional skillsets—we talked a little bit about innovation in the workplace and at the depots with added manufacturing and 3D printing, being able to do CAD [computer-aided design] diagrams. We are partnering with local colleges in the Albany, Georgia, area—we are going to do the same in Southern California, also at some of our bases on coastal Carolina—to provide these workers skillsets that they can use elsewhere.

I know that sounds somewhat counterintuitive, but we feel that if we are showing that we are taking care of that workforce, giving them those additional skillsets to excel in the 21st Century environment, then they will stay with us out of loyalty.

VADM GROSCLAGS. Sir, if I may really quickly, of our major three fleet readiness centers in North Carolina, Florida, and San Diego, San Diego is really the only one we have a challenge with in terms of hiring people. We have underexecuted our hiring plan there for several years in a row, and it is largely due to competition for the workforce as well as the high cost-of-living out there.

So we have turned to basically hiring bonuses, which has had a significant impact, positive impact, over the last 6 months.

The NDAA language this year in 2017 that is going to give us some direct hiring authority we believe will be very helpful once we fully implemented that.

The other thing we are actually looking at trying to implement with OPM [Office of Personnel Management] is some increase in locality pay.

So we are making progress. But in that type of high-cost environment where just up the road in the Los Angeles area you have a very competitive aerospace industry, that is a challenge for us.

Lt. Gen. LEVY. Senator, I would also offer that it is the entire team. So we tend to talk about the depot artisans, the jet engine mechanics, or the shipyard workers. But, frankly, it is the entire team. It is the engineers. It is the firemen. It is the entire ecosystem. The quarterback without the rest of his or her team is simply not going to be effective.

So the challenge is hiring across the variety of skillsets. But I will tell you, while we talk about things such as pilot shortages and other critical skillsets, I mentioned in my opening remarks, we simply do not produce enough engineers in the Nation. We have a challenge hiring them and keeping them.

I have 3,600 engineers in the Air Force Sustainment Center. That is more than the Air Force Research Laboratory. We are in a close-in battle with industry to recruit and retain that kind of workforce, and they are absolutely essential.

So it is really about the entire ecosystem for us.

We also find that much like we talk about pilot shortages, we see shortages in some of the aircraft skills—avionics, electricians, jet engine mechanics—because many of those men and women come to us from Military Service. With the Military Services being smaller, producing fewer and fewer American youth going into those lines of work to begin with when they come out of high school or going through vo-tech [vocational-technical], that presents some additional challenges for us.

But we partner very closely with all the colleges and universities and the vo-techs in the neighborhood of our primary installations. Actually, from an engineering perspective, we recruit nationwide to try to find the very best talent because in a software-driven Air Force, as we move to that Information Age Air Force from that Iron Age Air Force, we have to have that kind of talent.

Senator KAINÉ. Mr. Chairman, I am over my time, but could General Wyche just answer the question too?

Senator INHOFE. Sure.

Senator KAINÉ. Thank you.

LTG WYCHE. Senator, in regards to the hiring freeze, it does create some challenges for us.

Now we are able to meet our mission requirements. If that hiring freeze is extended beyond 90 days, it will have an impact on us recruiting a workforce, getting them in place, so they can continue to deliver those weapons systems.

Senator, you can recall back in 2013 when I was at Fort Lee when we went through sequestration. That was not a good time for our employees at Fort Lee and our Army.

With regards to the industrial base, we lost 7,000 employees. At McAlester alone, they lost 167 employees that never returned to McAlester because they went to other industries such as the oil industry. We are at that point where we are just beginning to recover from that.

So we are working through those, but the hiring freeze does have some challenges that we are working through.

Senator INHOFE. Thank you, Senator Kaine.

Senator Ernst?

Senator ERNST. Thank you, Mr. Chair.

Thank you, gentlemen, for being here and testifying today on our industrial base and the critical role that it plays in our military readiness. I recently visited Iowa Army Ammunition Plant, which is a government-owned, contractor-operated facility in my home State, and their ability to rapidly increase workload and provide a stable supply of ammunition is a key part to our national security.

However, due to their dependence on the Army to modernize the facility, their techniques, the manufacturing techniques, are behind. This is not something I blame the contractor for. They have put forth a proposal for the Iowa ammunition plant that could save the Army and taxpayers \$18 million per year, paying for itself in less than 5 years.

The cost-saving decisions currently sit with the Army, so, General Wyche, this is for you. What is the Army doing to modernize its GOCOs [government-owned contractor-operated] in order to help drive down production costs and cut overhead?

LTG WYCHE. Senator, we are doing a couple things.

First, we have identified the requirements, and we know that, to maintain the facilities, just to keep them from being degraded, it would cost us approximately \$100,000 a year and to get them at an acceptable level with the modernized capabilities, it would cost us another \$300 million for the next 10 years.

Senator ERNST. Okay.

LtGen DANA. Ma'am, if I could help out my Army brother on this, because they help us with ammo.

Senator ERNST. Yes, sir.

LtGen DANA. I made a trip to Lake City, which is one of the large ammunition plants in the Midwest. What is just fascinating about that facility is half the facility had equipment from 1942. I own a lot of weapons, not in DC, by the way, but I blowup my own ammo.

Senator ERNST. Do not admit that now. Right.

LtGen DANA. But if you look at how they work in the plant, it is just like they did in 1942 with the primers and the primer powder. It is very dangerous work.

But then the other half, because the Army's great initiative is they went to automated in the plant, so they retrained that work-

force to go for the guys and gals doing it for 30 years one way to where they are doing automated machinery, and they are doubling the output.

One of the questions was, how can the industrial base meet that requirement for ammunition? Well, I think the Army is doing a great job at that.

Senator ERNST. Yes. Hopefully we can modernize and get to that point where we are not losing that workforce but we are stabilizing the supply as well as growing that supply with demand as necessary. I appreciate that.

In 2015, the GAO came forward with three recommendations to ensure we sustain the critical capabilities found at our arsenals. The first issue is implementing guidance for make-or-buy analysis when it comes to DOD procurement. The second was to identify fundamental elements of a strategic plan for the arsenals. The third is to develop and implement a process for identifying critical capabilities at arsenals and the workload needed to sustain those capabilities.

The Department has concurred with all of those recommendations, but as of this morning, they have not followed through with any of those recommendations or produced the reports necessary.

I have been through the Rock Island Arsenal, and I really witnessed what the men and women are doing at that arsenal to contribute to our national security. This is taking a long time.

General Wyche, again, when will we see the reports that have been required, specifically the critical capabilities assessment and the guidance on make or buy?

LTG WYCHE. Senator, that particular area of make or buy, I would have to come back to you on the record with that particular answer, because I am not prepared to answer that question.

[The information referred to follows:]

The Assistant Secretary of the Army for Acquisition, Logistics and Technology, the Army Materiel Command, and the Department of the Army Deputy Chief of Staff for Logistics are working together to update both the GAO and Congress on these topics. The initial response to the GAO report was submitted by the Army on 5 January 2016. The GAO submitted a follow up inquiry on the Army's efforts/actions to implement GAO Report 16-086 recommendations. The Army Materiel Command is working with the Assistant Secretary of the Army for Acquisition, Logistics and Technology on the response for submission to the Office of the Secretary of Defense in mid-May. Additionally, we are also collaborating on the NDAA 2017, section 326 report to Congress. Section 326 requires the Secretary of the Army to submit to the congressional defense committees a strategy to revitalize the Army organic industrial base. This report includes several Arsenal-related requirements including an assessment of OIB manufacturing sources, an assessment of the processes used to identify OIB critical capabilities and sustaining workloads, and a description of manufacturing skills needed to sustain readiness.

Senator ERNST. Okay. I would appreciate that, because that is very concerning, especially to the folks at the arsenals.

LTG WYCHE. Yes.

Senator ERNST. They would like to see those reports as soon as possible.

Thank you.

Thank you, gentlemen.

Senator INHOFE. Thank you, Senator Ernst.

Senator HIRONO?

Senator HIRONO. Thank you, Mr. Chairman.

Thank you very much for testifying. I feel as though, with the sequester and with the budget caps, et cetera, that we are just doing a lot of catch-up, so I thank you for what you are doing with what we have provided to you.

Many of you have mentioned how hard it is to recruit or retain our workforce, that is a critical part of our industrial base, and at the same time how important it is that the men and women who do the work have modern equipment.

So, of course, at Pearl Harbor Naval Shipyard, I am always concerned about whether or not they have the tools with which to do the job. I am just thankful that you continue to emphasize those aspects.

General Levy, you were one of the people who mentioned about recruiting and retaining. I am just wondering, the people with STEM backgrounds, are you doing anything special to recruit women?

You can start, and then any of the rest of you, because women drop out of the STEM fields at every point of the continuum, and unless we do something very specific targeting women and girls and minorities in these areas, it is just not going to change very much.

So are you doing anything in particular recruiting women?

Lt. Gen. LEVY. Yes, ma'am. Thank you for asking that question.

I often tell people, how long does it take to grow a STEM worker for an air logistics complex? About 21 years, from about here all the way until he or she graduates from university and is ready to come be one of our civilian airmen.

So we have a variety of programs where we do outreach to females and to minority or disadvantaged areas. In fact, last year alone, my engineering community did 60,000 hours' worth of community outreach to try to develop interest in STEM curriculum throughout different parts of the communities where our bases are located. Obviously, it tends to be in the area where our facilities are located.

Senator HIRONO. Did you say you are starting at an early age as in middle school, elementary school?

Lt. Gen. LEVY. No, ma'am, as in elementary school.

Senator HIRONO. That is great.

Lt. Gen. LEVY. Because if you do not imbue them with that desire for STEM early, and if you do not give them the passion for learning and the intellectual curiosity, and, also, if the state educational systems do not have the ecosystem that delivers things like high school physics and calculus and that sort of thing, then they are certainly never going to go to university and be an engineering graduate.

We also financially support as well as support with volunteer time the STARBASE program at all three of our primary installations, which is another science and technology—I would sort of refer to it as a learning camp for young boys and girls, to get them interested in STEM career fields and hopefully spark that interest.

Senator HIRONO. Are you doing similar kinds of outreach for the Army and the Navy?

VADM GROSSELAGS. Senator, if I could, our program with NAVAIR [U.S. Navy Naval Air Systems Command] is very similar

to what General Levy just described. The other thing I would add is, through our Executive Diversity Council at NAVAIR, we have separate advisory groups, one for women, one for Hispanics, one for African-Americans, one for Asian-Pacific islanders, and on. Part of those advisory groups' major focus is exactly on recruiting within either those ethnic or gender groups. We have had very good success in doing that.

As somebody alluded to earlier, then we have to keep them. One of our challenges is keeping them because it is a very competitive marketplace.

Senator HIRONO. Yes. I realize that.

Anybody else?

LTG WYCHE. Yes, Senator. We have several outreach programs at each one of our 23 arsenals where the commanders are personally engaged. They are visiting colleges, identifying those potential students who would like to come work at our arsenal.

One program that we are really excited about is the AMC [Army Materiel Command] 1,000 program. That is a program where we set a goal to hire 1,000 summer interns, 1,000 per year for the next 5 years. In the last 2 years, we have been able to reach that goal, so we are very excited about that program.

Senator HIRONO. So your summer intern program, are they targeted to minorities and women?

LTG WYCHE. Yes, they are. Yes, they are.

Senator HIRONO. I congratulate you for your efforts. Because I know this is such a needed area not just of course for our military but across the country, we have a need for hundreds of thousands of people with STEM backgrounds, so I do have a couple of bills that I have introduced. I will send you copies. The focus is on supporting more minority and women in these fields.

In the few seconds that I have left, Mr. Chairman, the President has called for a significant increase in the number of ships, so I wanted to ask, this is for Admiral Moore, how would a Navy of 355 ships impact the current capacity of our public shipyards?

VADM MOORE. Thank you, Senator, for the question. We have already started to look at what that would take. The plan to get to 355 that we have laid out in our force structure assessment gets us there in the mid-2030s, and so we will need to grow the size of our naval shipyards. We will have to grow the size of our private sector that is building the equipment today.

We are also going to have to remember, up at the headquarters level, where we are providing technical support and oversight and technical manuals, et cetera, we are going to have to grow all those. So the time frame between now and 2035, as long as there is a stable and predictable budget that goes along with that, we can manage to grow the workforce.

The Navy has been at that size before, and we were able to maintain the force back then. If it is done in a sustained way, we can certainly grow the workforce to get there. We have already taken the steps to make those plans as we start to grow the force.

Senator HIRONO. So if you already have these kinds of plans and what it would take to get to this number, could you share those with our committee?

VADM MOORE. Sure. Yes, ma'am.

[The information referred to follows:]

The Navy is growing our organic shipyard workforce to 36,100 full time equivalents (FTE) across the four Naval Shipyards to meet our existing workload projections which peak in fiscal year 2021. The 355-ship Navy will add nine additional submarines and one carrier above what is in the Navy today. To properly support a 355-ship Navy, we will have to modernize our four naval shipyards and possibly increase the size of our workforce beyond 36,100. The Navy's Shipyard Infrastructure Optimization Plan lays out a two-decade investment plan required to provide the Shipyards the Navy needs. Focused on three major areas—dry dock recapitalization, facility layout and optimization, and capital equipment modernization—the Shipyard Infrastructure Optimization Plan is designed to improve shipyard performance to meet fleet requirements based on the size of today's Navy. However, the process and infrastructure efficiencies realized by executing the plan will allow our shipyards to better support a 355-ship Navy. Going forward, the Navy will continue to annually assess future workload requirements and make adjustments to FTE numbers required to balance capacity in view of any new maintenance requirements, changes in ship operations, or changes to shipbuilding and/or ship inactivation plans. We are moving ahead with the Shipyard Infrastructure Optimization Plan to address our most pressing modernization requirement so we can deliver ships out of maintenance, on-time.

Senator HIRONO. Thank you, Mr. Chairman.

Senator INHOFE. Senator Rounds?

Senator ROUNDS. Thank you, Mr. Chairman.

Gentlemen, thank you for your service to our country. I think sometimes we get in the middle of a discussion on everything else and we forget that it is gentlemen like you that make this whole thing work, and we appreciate what you do and we appreciate what your teams do.

One of our challenges is that we need to be in a position to supply you with the materials and equipment that you need. When you make reports back to us indicating that there are times in which you need equipment that you have right now that you are not able to maintain appropriately because the funding is not there, it is something that we have to highlight.

I would like to begin with talking about the USS *Boise*.

I know that in your opening statements for the record, Admiral Moore, you had based the fact that you had to make a determination as to whether or not a nuclear-powered submarine would basically remain at dock because we did not have the dollars available to get it in and to get it up to speed to actually be able to dive again.

Can you share with us just exactly what is going on with that, why would we have that kind of problem with a nuclear submarine? How in the world would we ever justify having an asset of that value sitting at dock and not having the resources available to maintain it in a seaworthy condition?

VADM MOORE. Yes, sir. Thanks for the question, Senator.

In the *Boise* situation, what happened is—and this issue is with the naval shipyards. It is we did not have enough workforce to go to get the work done. Our typical behavior in the past—and there are a couple submarines in the yards right now, USS *Asheville*, USS *Hawaii*, and USS *Albany*, who is also in Norfolk.

An availability that would have typically taken 22 months, we inducted them into the shipyards anyway knowing that we did not really have the workforce to work on the availability. So the net result was that the submarine would stay in the shipyard for 48, 49 months.

If you are the crew of the Asheville or the Albany and you have been told, hey, this is 22-month availability, and you are in that naval shipyard for 4 years plus, you can imagine what it does to morale and retention.

In the case of the USS *Boise*, we were faced with a similar situation. We did not have the capacity at Norfolk Naval Shipyard to do the work.

When I came in as the Naval Sea Systems Commander, one of the things that I talked with Navy leadership about was, hey, look, we have to be realistic that we do not have the capacity to get the work done. When we face something like *Boise*, we have to recognize that sticking it in and just letting it sit there pier-side for 4 to 5 years is really not the way to do it.

In the *Boise* case, we made a decision to not put it in the shipyard because I did not want it to sit there for 4 to 5 years. The downside of that is nuclear submarines have very specific maintenance that has to be done on them in order for me to certify that the ship is safe to submerge.

You are exactly right. We have taken a submarine, even though it is an Active Duty submarine, to essentially it is not available for the Nation's use.

We have to be able to get out in front of this. We have to be more predictive about the—

Senator ROUNDS. Admiral, I appreciate your comment, but what I am curious about is why did we find ourselves in that position? Is it a matter that we did not have the money to pay the bills to get it done?

VADM MOORE. Yes, it is—

Senator ROUNDS. Or is it a matter that we did not have the capabilities, and we just did not see it far enough in advance?

VADM MOORE. We did not have the capacities, so there are two things.

One, we should have been more forward-looking and anticipate—we know when these submarines are going to come in—and be able to say, hey, I do not have the workforce necessary to get that work done, because it takes me 2 years—from the time you give me a dollar to go hire a worker, it takes me 2 years to get that person—

Senator ROUNDS. So does that mean we did not get the money to you in time?

VADM MOORE. No, I think it is not a matter of you not getting the money to us in time. It is a matter of competing resources within the Navy and the Navy's decision on what was going to be in the budget at the time.

In particular, when we submitted the budget for fiscal year 2014, that is probably when we would have needed the resources, the money, in order for me to go hire up to where I needed to be at Norfolk Naval Shipyard in 2016.

It is a terrible situation on *Boise*, and we need to make sure that, going forward, we get the capacity in the shipyards right and we work with our private sector partners at Electric Boat and Newport News Shipbuilding in a one shipyard concept so that if we know we are not going to have the capacity to get it done, we work with

them so that, in fact, if they have the capacity, they can do the work.

In this particular case, Electric Boat is going to do the work probably on the boat, but it is going to be in 2019. So we are going to take a submarine and set it pier-side for about 3 years.

Senator ROUNDS. So that means then that the captain who was perhaps on his way through a process in which he spends time someplace besides at sea, it impacts not only his ability to move forward with his career but everybody on that ship is now delayed as well. Is that a fair assessment?

VADM MOORE. Yes, sir. Absolutely.

Going beyond just to the personnel level of the ship and crew itself, we are going to take a submarine, if you are assigned to that submarine for the next 3 years, you are not going to go out to do what we have trained you and what you love to go do. So that is something we have to go work on, and we cannot let the Boise example happen again.

Senator ROUNDS. Thank you, Mr. Chairman. My time has expired.

Senator INHOFE. Thank you, Senator Rounds.

Senator Perdue, you are now recognized.

Senator Kaine is now presiding.

Senator PERDUE. Thank you, Mr. Chairman.

Gentlemen, I want to echo what Senator Rounds has said. A lot of times we get to the problem without thanking you guys. I would like, just as importantly, for you to take it back to your teams as well, that it is not lost on us that we have lived in utter peace here in the homeland for quite a number of years, even though we have been deploying. We know what is involved in that.

So we thank you all for that.

I have two concerns. I am an old supply chain guy, so I have sat in your seat. I understand what you are up against. This did not just start in the last couple years. I mean, we have had three periods of disinvestment in the military in the last 50 years, the 1970s, the 1990s, and the last decade. But this time, it is really serious because it comes on the back of the recaps that happened before then, each of those times. It actually started from a higher point.

So the disinvestment in the military this time actually started from a depleted point to start with. We burned up a lot of our equipment. Deployments were longer. We ended up in a weaker position before this disinvestment started.

I have two concerns. One is our organic workforce, what I call your depot and your shipyard workforces. Two is the supply chain.

The supply chain is two things, I think. One is your ability and your shipyards and depots to turn around maintenance. But the bigger one, in my mind, is, as our platforms—and this is true across-the-board, whether it is air, sea, or whatever. I mean, the assets that we have, the major platforms are all maturing at very similar times. The startups have been delayed such that, if I look at it honestly, we do not talk about this much, but we have a gap in capacity that is anywhere from 1 to 2 years in some platforms to as much as 10 years in other platforms.

It is a major problem. The optempo that we were experiencing in the last decade contributes to that.

I have two quick questions.

General Levy, I know you have talked about this last year in committee and in private about your workforce. Because of those conversations, I think in the NDAA last year, there was a direct hire authority put in place.

How long does it take you to hire a systems engineer or mechanic, a scientist, today?

Lt. Gen. LEVY. That is a great question. Thank you, Senator.

So, first, I would like to say thanks for the direct hire authority that was signed into law in the NDAA.

Senator PERDUE. Where are we in implementing that?

Lt. Gen. LEVY. So the OSD [Office of the Secretary of Defense] draft policy or draft guidance was submitted to the services on the 20th of March, required back to them on the 3rd of April. Then once they approve that, then the services will begin implementing the direct hire authority. As you recall, there was a 2-year authorization.

We look forward to coming back to you all in the future, telling you how the direct hire piece of this is working. So we are not there yet, because that is recently enacted legislation.

Senator PERDUE. These are policies inside the service, correct?

Lt. Gen. LEVY. Yes, sir. So enacted in the NDAA, signed in December.

Senator PERDUE. Right.

Lt. Gen. LEVY. That is a new authority for all of us.

Senator PERDUE. Right.

Lt. Gen. LEVY. So OPM had to write some guidance. They distributed it to OSD, who then has now created some guidance. They have asked the services to comment, with the comments being due on the 3rd of April. I expect that we will be able to have the guidance to do the direct hire in the weeks ahead.

Senator PERDUE. So how long does it take you to hire those guys today?

Lt. Gen. LEVY. So, today, it takes, on average, 148 days to hire somebody. In fact, I pulled the numbers this morning because this is important to me, right? This is very much central. The human beings that work on these platforms, whether they are engineers or jet engine mechanics or firemen or somebody who works at a daycare center, they are all equally—

Senator PERDUE. When you identify retaining somebody, and this is true in business as well as military, finding somebody and retaining them are two different things. You find somebody. If it takes 148 to onboard them, you lose a lot of candidates during that process.

Lt. Gen. LEVY. Yes, sir.

Senator PERDUE. You have to. So you are perpetually finding new candidates to start another clock of 148 days.

Lt. Gen. LEVY. Yes, sir.

Senator PERDUE. That is a disaster waiting to happen.

Lt. Gen. LEVY. It is very difficult to close that circle.

Senator PERDUE. I will tell you, in business, to hire these people today is 30 to 45 days tops—tops—90 days for a CEO [Chief Executive Officer]. Someone at your level in business today, if I started

a search as a board member, it would be 90 days. If I did not have an answer in 90 days, I would be after somebody's job.

This is how far out we are in terms of being competitive. So tell us what we need to do. As you onboard that procedure, please keep us involved, because this is one where you have a great standard to look at, because these are the very places you are competing.

I am going to be out of time, but, Admiral Moore, I want to get it to one other question, and that is the supply chain. As these big platforms—the reason I want to ask you, you have the aircraft carriers, you have the SSBNs, these are major, major platforms over long periods of time.

The Federal Government does not have a capital budget. We just do not. I do not know how we actually commit industries to build these huge platforms without a long-term plan.

So the inconsistent start-stop of these budget conversations that we have in Congress, tell us the impact that that is having on this domestic supply chain for these major platforms. You can talk about the air platforms too, the F-35, the F-22, and the follow-on maintenance that is required to keep those things going.

LtGen DANA. Yes, thanks, Senator, for the question.

A lot of times, we focus most of our effort on when we have budget unpredictability at the tier 1 yards, the people who are actually building the ships and the submarines or who are doing the maintaining. I would tell you, if you are a Northrop Grumman or an Electric Boat, then you have the cash reserves to kind of absorb a little bit of that.

But where it has the bigger impact is at the tier 2, at the supply chain, the people providing the cabling, the pumps, the valves.

The unpredictability in the budgets absolutely has significant challenges for us in terms of being able to maintain somebody that is providing a pump or a valve or you name it to a ship or a submarine. They do not wait around long. If it is unpredictable, they will go do something else, because they are running in a cash flow environment that does not allow them to absorb losses for very long.

So it is certainly a major concern to us, and it is something I would like to focus on when we talk about the budget unpredictability, is that these are the people that really get impacted.

When they drop out of the business, it just means less competition, which it is kind of a vicious cycle. It drives our costs up in the end.

Senator ROUNDS. I thank all of you.

Thank you, Mr. Chairman.

Senator KAINE. [Presiding.] I do have one second round question. Do you have any other questions you wanted to ask?

Senator PERDUE. We would be here all day, sir.

Senator KAINE. If you want to keep going, you can. I have one quick one that is kind of a wrap-up, but feel free, since I have to stay here.

[Laughter.]

Senator PERDUE. Senator Kaine and I have closed plenty of these committee meetings together. He has a marine that is in harm's way today, and I know how serious he takes this.

I grew up at Robins Air Force Base, and I have been to Albany many times. I still have the mud from the Columbus area under my nails. I know where you guys have had footprints.

I am very concerned about—we have now moved into, it looks to me like, a military position posture where deployment is going to be sort of the watchword of the day. We closed 15 bases in Europe in 2015. I think that number is correct. We have not had a major BRAC [Base Realignment and Closure] here, in terms of our facilities matching the requirement.

In your opinions, and I would welcome anybody to onboard this question, and that is, with regard to our footprint here in physical plants, General Dana, you said, and you summed it up best. You said, here are the problems: aging equipment, complexity of today's systems, decline in depot funding, and decline in our facilities.

So the question I have is, are our facilities in the United States and abroad matching this 4-plus-1 mission requirement it looks like you guys are geared up to try to deal with today that is so different than the 1-1 mission requirement we had over the last 50 years.

LtGen DANA. Yes, sir. Thanks for that question. We have 33,000 marines forward-deployed right now, 22,500 west of the dateline and—

Senator PERDUE. He has one of them.

LtGen DANA. Yes, sir. We had that very discussion yesterday.

As you look at our infrastructure, I cannot speak for the other services, but in terms of the Marine Corps, we think we are in a good place in terms of the number of facilities we have, especially if we go to an above 185 force, to be determined by funding, of course.

But in terms of the infrastructure itself, I mentioned that we had many facilities that were in poor and failing condition. I just quickly want to talk about this, as we are looking very hard, sir, at the entire portfolio. We have one command, Marine Installation Command, that looks at all of our facilities and develops a consolidation, demolition, refurbishment, and new build plan that the Commandant makes a decision on how that goes.

So in the past, it was somewhat stovepiped. You talked about your command and your command. Same thing with us on the installation side. So we are making those dollars go the furthest when we create literally a master plan for the entire Marine Corps and how it beds down.

Senator PERDUE. Do you guys outsource to each other?

LtGen DANA. Yes, sir, at Fort Leonard Wood, and other places. Yes, sir.

Senator PERDUE. What I am asking, if you have depot limitations in certain places, certain depots, I mean, I look at the F-18s, for example. We have a lot waiting on major depot maintenance. But there are other depots that might have excess capacity.

I know you look at this all the time in terms of the cost of making that depot apply to another need, but is that ongoing? Are those things you guys are always—

LtGen DANA. Yes, sir. We do our tanks at Anniston. They do a great job.

Lt. Gen. LEVY. Our helicopters are done at Corpus Christi Army Depot. We do Marine F-35 and Navy F-35 work at Hill Air Force Base in Utah.

We talked earlier about the F-18 work that we are doing for the Navy not only at Davis-Monthan, at the boneyard, but also asked Robins Air Logistics Complex.

We do the Navy E-6 work at Tinker Air Force Base. We do Navy and Marine F-35 engines at Tinker Air Force Base.

So, yes, sir, there is a lot of crosspollination that occurs.

LtGen DANA. Not only the physical part but we do a lot of sharing ideas. Lee invited me out to Tinker, and that is an absolutely 21st Century depot, great processes, reduction in cycle time. We got a lot of lessons from that for Albany and Barstow.

Senator PERDUE. Well, General Wyche and General Levy owe you two beers after today. You have been bragging on all these guys today.

Thank you, Senator Kaine.

Senator KAINE. Thank you, Senator Perdue.

Just really one last question, and it is a good closer.

So in your current lane, what is it that most keeps you up at night? In any particular order, we would love to hear from you.

LTG WYCHE. Senator Kaine, I will start with the lack of predictable, consistent funding, because when we do not get that, we not cannot plan our workload. We cannot plan our production schedules. That is very important to us. Equally as important, it creates concerns among our employees, because they want stability in their lives.

Senator, back to your comment on the supply chain, there is concern also in the supply chain. We monitor approximately 4,000 suppliers that we build with. In our analysis, we have identified 1,000 of those suppliers at medium- to high-risk to going bankrupt. That is a very important as we continue to provide the readiness for our Army.

Senator KAINE. Admiral Grosklags?

VADM GROSKLAGS. We will just go down the row here, sir. Two things, if I might, one on-topic and one perhaps slightly off-topic.

The readiness of the naval aviation forces is number one. We alluded to some numbers earlier—

Senator KAINE. We had some powerful testimony about that at the last hearing.

VADM GROSKLAGS. Yes, sir. I will not go into a lot of detail on that. You are well aware of it.

The challenge I mentioned in my opening statement and that General Wyche just mentioned is about stable funding and getting the funding up to the level we need. We have clear data that shows, as funding started to decline back in the 2009–2010 time frame, our readiness on the flight line, mission-capable aircraft, full mission-capable aircraft, dropped in exact correlation with that reduction in funding for those NAVAIR accounts that I mentioned earlier. So that is one.

The other one is also related to the other part of my business, which is the buying of new stuff, the acquisition piece. There, we are just too slow. It continues to bother me that we cannot collectively accelerate that process. There are a number of initiatives

that we are working on that I would be happy to share with you at another time.

Senator KAINE. Great. Thank you.
Admiral Moore?

VADM MOORE. Yes, Senator. I think the thing that keeps me up at night is not having another Boise. We have the smallest fleet we have had in a long time. Getting these ships and submarines back out to the fleet, out there in the operating force, is critical to the Navy's readiness, to the Nation's readiness.

When we have something like Boise or we deliver George W. Bush late, 5 months late out of availability, the impact of that is that the young men and women out there wearing the uniform are having to deploy longer and stay on station longer.

So it is not lost on me that, at the end day, it is my job to get these things out on time. It really impacts our ability to keep these young men and women safe and get them back on deployed turn-around times that make sense.

Senator KAINE. Thank you.
General Dana?

LtGen DANA. Sir, two quick things.

First, we track 19 platforms in the Marine Corps, shoot, move, and communicate. Only one of those, an assault amphibian vehicle, is being replaced. Where I am going with this is deferred modernization, because we need new systems in the future because, as I talked about accelerated aging, these systems are going to wear out at some point.

The second one, not exactly my lane, the gentlemen to my right have this lane, but as you look at the capability development system in the military, which is a Robert S. McNamara, very Ford Motor Company type system, it is not keeping up.

I went to Singularity for a week, to the executive course. You look at those folks out there, they are turning product in weeks and months and maybe 18 months. I mentioned yesterday Local Motors, a company here locally that literally, from idea to design to fielding of the equipment, they are doing it in anywhere from 3 to 13 months.

That is the future, because the enemy in the future, we are coming out of an Industrial Age where it is all big iron. Now we are going into space and cyber five-dimension fight instead of a three-dimension fight. We are going to need to be able to manufacture capabilities a lot faster.

Thanks for the opportunity to comment.

Senator KAINE. Thank you.

General Levy?

Lt. Gen. LEVY. Thank you, Senator.

To General Dana's point, our adversaries also iterate that fast, in terms modernization. Our adversaries can go from concept to hardware on the ramp in 18 to 24 months. So from a modernization perspective, we all have a pretty considerable need for modernization, but it is not just the new platforms. It is the speed at which we field them.

To your direct question, Senator, about what keeps me awake at night, it is stable and predictable funding. Since I manage the supply chain for the United States Air Force, when I do not know

when I am going to get my money, I cannot tell suppliers when I am going to spend that money.

To General Wyche's point, we drive businesses out of business. That is not what we are here for. But when the average fleet age of the United States' platforms is 27 years old, and 21 of 39 fleets could qualify for antique plates in your State, sir, that tells me that the supply chain and the ability to have that available to us to sustain those older platforms is absolutely essential. The funding that drives the human beings, the infrastructure, the MILCON, all of the components that it takes to generate that readiness, that all stems from a stable and predictable funding stream.

So that coupled with the modernization challenges for our Air Force are the two things that really give me pause.

Senator KAINE. Senator Perdue has heard me give this lecture in Budget, and he and I are kind of on the same page about this. On budgets, I am a real certainty—having been a mayor and governor, I learned that anybody can adjust to a number more than they can adjust to a question mark. Even if they do not like the number, they can adjust to a number. But a question mark is tough, especially if the question mark is not only a question mark about the amount but about when I may know when the question mark is going to be filled in with an amount.

I continue to believe we made an enormous mistake at the end of the last calendar year. We were very close to having an omnibus bill done that would have been, essentially, a 10-year full appropriation not only in the defense category but in everything else.

The incoming administration—I can understand why they did this, they are about to take the helm, and they want their thumbprint on it rather than somebody else's. But they said do not do it, go ahead and adjourn on the 10th of December even though you have the time to do an omnibus, and do a CR through April 27.

Well, what that did is it put them in a box where, when they came in, they had to then turn around and do a budget for the rest of fiscal year 2017 and work on a 2018 budget. A new administration working on just a fiscal year 2018 budget is plenty to take on their shoulders, but they complicated the work by telling us to recess and go home on the 10th of December when we could have gotten an omnibus bill done and still had plenty of a fine Christmas vacation.

So we made a big mistake, and what we ended up doing was not giving you certainty. So we have this CR that goes through the 27th, and we are sitting here, Senator, I do not really know exactly what is going to happen come the 27th of April. We are in the middle of the discussion about the fiscal year 2018 budget too.

So we ought to be giving you and giving everybody more certainty. Even if you do not like it, even if you wish the number was different than the number we give you, at least we can give you something that you can plan and adjust around.

That really has been on us. This is something that I know Senator Perdue shares my views about this, being both on Budget and Armed Services. We owe you better than what we are giving you on the predictability score. Hearings like this kind of have a way of reminding us that we have to step up our game a little bit.

So thank you so much for what you do, for your testimony, and we will look forward to taking this into account as we are working on the NDAA.

The hearing is adjourned.

[Whereupon, at 3:31 p.m., the hearing was adjourned.]

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JAMES INHOFE

MAINTAINING AND SUSTAINING AGING WEAPONS SYSTEMS

1. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, what are the challenges of maintaining aging weapon systems with regards to engineering, parts, supply chain, costs, etc.?

LTG WYCHE. Maintaining aging weapon systems leads to higher than programmed costs for the Army. The Army is keeping systems longer than they were initially designed, resulting in obsolescence. Fewer vendors manufacture replacement parts requiring larger inventory/stock levels and increased storage costs. Examples include the M-113 Armored Personnel Carrier and the M109A6 Paladin, which still uses the Vietnam-era chassis.

VADM GROSKLAYS. Maintenance, repair and overhaul (MRO) of aging weapons systems and associated sub-systems presents a number of challenges, including age/use based structural fatigue, parts obsolescence, component reliability and inventory availability; each of which has an impact on portions of DOD's maintenance and sustainment system. For example, structural fatigue can lead to cracking or other material degradation (corrosion) that must be mitigated. To do so can require extensive engineering analysis and subsequent logistics decisions regarding make, buy or repair of the analyzed item. With aging systems, the make, buy or repair decision can be particularly challenging depending on vendor availability, access to technical data packages, materiel inventory levels, or access to commercial/organic repair sources of repair and support equipment. In total referred to as Diminishing Manufacturing Sources and Material Shortages (DMS/MS). If any of these elements are immature, not available or must be reconstituted to affect a make, buy or repair action, it adds significant cycle-time to weapons system or sub-system sustainment with commensurate increases in system down-time and cost.

VADM MOORE. The maintenance, repair, and overhaul of aging weapon systems and associated subsystems present a number of challenges. With regard to parts support, age-based structural fatigue, parts obsolescence, component reliability, and inventory availability impact portions of the Navy's maintenance and sustainment schedules for each ship, submarine, and aircraft carrier. For example, structural fatigue to a component or system can lead to cracking, corrosion, or other material degradation that creates risks which must be analyzed for mitigation. This work requires engineering analysis and subsequent logistics decisions regarding whether to make, buy, or repair the component or system. Modernization of weapon systems presents similar challenges. Engineering and other studies must be conducted to determine if a system should be modernized, retired, or replaced. Until these actions are taken, the Navy risks maintaining systems that may have outlived their effectiveness. Such decisions can be particularly challenging depending on vendor availability, access to technical data packages, material inventory levels, or access to commercial and organic sources of repair and support equipment. An additional challenge is that the original equipment manufacturer often does not support aging weapon systems. Companies that provided the original weapon systems may have gone out of business or are now producing newer weapon systems and no longer support the older systems. Any repairs that require engineering for such systems adds significant costs to sustainment and increases the overall down-time of that particular weapon system or item. In total, this is referred to as diminishing manufacturing sources and material shortages. If any of these elements are immature, not available, or must be reconstituted, it adds significant cycle time to the sustainment of a weapon component/system or subsystem, with commensurate increases in system downtime and cost. Compounding the parts support challenge is the diminishing workforce expertise for older weapon systems. The life span of many naval ships varies and numerous weapon upgrades or replacements occur during their service lives. Due to turnover of personnel within the Naval Shipyard workforce during such a time period, the experience and expertise level required may not be available for the aging systems.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY.

1. Many of the AF's aging aircraft still utilize obsolete technology or equipment that is extremely costly to upgrade/replace. In many instances, the original manufacturer is no longer in business or no longer wishes to manufacture these obsolete items. The 448th Supply Chain Management Wing (448 SCMW) has a Diminishing Manufacturing Sources and Material Shortages program for managing these issues.
2. Proprietary data is a major limiter. Having no or limited data rights reduces our ability to source new suppliers and often leaves us with reverse engineering as our only option.
3. Evolving market dynamics for some defense unique products may lead to industry consolidation, restructuring, or exit strategies that affect DOD's ability to sustain a supply chain for aging weapon systems. The low demand for some unique military parts is not enough to sustain competition. In some cases, the demand is so low that it's not cost effective to manufacture parts or require Minimum Buy Quantities above the actual requirement. The reality is that our aging systems are less profitable than other prime businesses.
4. Effective global supply chain integration and management are critical to DOD program success. While globalization brings many benefits to both defense firms and the Department, this cross-border collaboration has also increased the potential threat of global supply chain disruption, counterfeit parts, sabotage, and theft of critical American defense technology. This shifting landscape of defense production may require new tools and authorities to address prospective security threats and to safeguard the value and integrity of American technology.

2. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, have each of the services been working together and with DOD and industry on sharing best practices, revising processes and readiness plans, cutting costs? If yes, please provide examples.

LTG WYCHE. The Army routinely shares and seeks methods to garner efficiencies, control costs and provide a quality product in accordance with the agreed upon schedule. A current example of coordination with our Sister Services is the UH-60 Blackhawk Helicopter Recapitalization program at Corpus Christi Army Depot. This program is currently being executed by employing the 'Art of the Possible' Lean Six Sigma focused process. The Army adopted this process from the United States Air Force at Warner Robbins Air Force Base in Georgia. Corpus Christi Army Depot is currently in the first year of utilizing this concept, but we envision reducing Repair Cycle Time from over 500 days (currently) to 320 initially with a stretch goal of 280 Repair Cycle Time. The Headquarters, Army Materiel Command and its LCMCs regularly conduct Industry Forums with the private industry to discuss warfighter and industry needs, areas of concern, and collaborate on future initiatives important to sustaining the joint warfighter.

VADM GROSKLAYS. Yes. The services do work together sharing best practices with each other and with industry. Benchmarking repair processes among organic depots is common. Recently, Fleet Readiness Center Southwest in San Diego, CA visited the Air Force Logistics Center (ALC) in Oklahoma City, OK to study the Air Force's use of Critical Chain Project Management in aircraft production. With regard to specific aircraft, while investigating challenges with CH-53 sustainment, USN/USMC reviewed the Army's CH-47 helicopter reset program after years of operations in Iraq. This successful exchange led the Navy to employ a similar Depot maintenance approach for its CH-53 helicopter program. At the component level, inter-service cooperation involves the Navy and Marine Corps in cooperation with the U.S Air Force to study and prototype the USAF consumable sparing model for use in support of the MV-22 aircraft. At both a formal and informal level, the services belong to organizations such as the National Defense Industrial Association (NDIA), Aerospace Industries Association (AIA) and others which are in place to promote "best policies, practices, products and technology for warfighters." This cooperation and sharing can be seen in such forums such as the recent Sea, Air and Space Symposium and at the DOD Maintenance Symposium held annually at locations throughout the United States. Finally, Naval Air Systems Command visits occur routinely with Original Equipment Manufacturers (OEMs) and other industry partners such as American Airlines, Sikorsky, Boeing and others to gain an under-

standing of best and current practices employed to maintain and sustain a global aircraft Fleet.

VADM MOORE. The Navy has been working with DOD and Industry on sharing best practices, revising processes and readiness plans, and cutting costs in a variety of ways. Naval Sea Systems Command (NAVSEA) has within its Acquisition and Commonality Directorate two critical programs through which this occurs: the NAVSEA Enterprise Commonality Office and the National Shipbuilding Research Program. The NAVSEA Enterprise Commonality Office focuses on working across the NAVSEA enterprise to advocate for cross-platform commonality and variation reduction in order to reduce the fleet's total ownership cost while maintaining capability. The office develops the necessary policies and guidance to implement commonality initiatives, and institutionalize commonality principles and practices across the Command. The National Shipbuilding Research Program (NSRP) provides a framework for shipyards building and repairing naval vessels to share best commercial and naval practices and execute research and development opportunities that will reduce the total ownership cost of U.S. Navy ships, other national security customers and the commercial sector. NSRP is a Navy-sponsored collaboration of 11 U.S. private shipyards, five NAVSEA-affiliated Program Executive Offices, the United States Coast Guard, and the NAVSEA Enterprise Commonality Office. A key NSRP product is the Strategic Investment Plan, developed jointly by Industry and Navy leaders from the input of Industry experts and the results of benchmarking studies conducted to identify technology gaps and the need for process improvements. Research projects to close gaps and improve processes have been carried out over the years by 11 shipyards, 24 universities, over 290 shipbuilding suppliers, and Navy subject matter experts across 43 states.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. The Air Force Sustainment Center (AFSC) has been working together with DOD and Industry through Depot Maintenance Inter-service Support Agreements and Public-Private Partnerships (PPPs). Working together with DOD and Industry: The AFSC negotiated its first Enterprise Partnership Agreement (EPA) with Boeing in 2013, and has since expanded its EPA portfolio to include 18 Industry partners. This innovation in partnering strategy allows the three Air Logistics Complexes to execute Implementation Agreements in an expeditious manner, thereby reducing administrative cost and increasing efficiency. The EPAs cover both products and services, including software, commodities, new technology implementation, and other elements as required. In an article referencing the signing of the first AFSC EPA with Boeing, Mr. Bill Kobren, Director of Logistics & Sustainment Center at Defense Acquisition University stated, "this enterprise-level agreement appears to represent an important PPP initiative, aligning with the broader partnering vision and industrial integration strategy articulated in the DOD Weapon System Acquisition Reform: Product Support Assessment, the Air Force's Product Support Enterprise Vision, and the overarching Partnering Agreement (PA) construct discussed in the DOD Public-Private Partnering for Sustainment Guidebook." <https://dap.dau.mil/career/log/blogs/archive/2013/11/07/enterprise-partnership-agreement.aspx> The AFSC is further engaging with Industry through 121 PPP workloads, all of which are uniquely different. Examples include:

- F-22 Power Systems (Boeing)
- F-22 Storage Management Systems (Boeing)
- F-35 Air Vehicle Maintenance (Lockheed Martin)
- B-2 Advanced Composites Manufacture/Repair (Northrop Grumman)
- C-130J Depot Activation (Lockheed Martin)
- C-17 Airframe and Avionics (Boeing)
- C-17 Valves & Actuators (Parker Aerospace)
- F117 and F119 Engine Heave Maintenance (Pratt & Whitney)
- AE Series Engines (Rolls-Royce)

Sharing Best Practices: The Public Private Partnering (PPP) Metrics Team. This team, composed of DOD and private industry partnering experts, established a metrics table that was incorporated into the DOD Public Private Partnering for Product Support Guidebook in October 2016. These metrics are cross referenced against relevant DOD Partnering Objectives to identify which metrics best support each respective objective. Having metrics to gauge partnering performance that apply to both DOD and Industry is a best practice that assists in determining partnership effectiveness. (Metrics tables are available in the DOD Public Private Partnering for Product Support Guidebook, pages 38-46.) The Warner-Robins Air Logistics Complex (WR-ALC) Corrosion Control team collaborated with Boeing and C-17 System Program Office (SPO) Engineering to develop a process to chemically

strip composite components resulting in the first ever chemical depaint process for C-17, reducing depaint flow days at WR-ALC by over 40 percent. The WR-ALC team visited Boeing paint and depaint operations and worked with Boeing Production and Management teams and Boeing Quality Assurance (QA) to share best practices in painting, stenciling, sanding, and various corrosion control processes resulting in numerous improvements to equipment, tools, and processes. The joint team developed the resin application process resulting in a standard process to restore resin-starved composite surfaces prior to painting. In addition to establishing a monthly Corrosion Control telecom, the team collaborated to rewrite work instructions to streamline the wash and lube processes resulting in more efficient aircraft flow at both locations. Working Together with Other Services: The Navy MQ-4C Triton and the Army MQ-1C Gray Eagle platforms. AFSC activated the Power and Discrete Controller (PDC) for Global Hawk in 2011. In 2015 the Triton Program Manager approached WR-ALC concerning the organic activation of Triton's PDC. Both platforms were manufactured by Northrup Grumman. The activation for the Triton PDC will be able to leverage facilities, equipment, tooling, training, and tech data from the Global Hawk activation. Battery Repair for the Air Force Predator/Reaper program expanded to include Battery Repair for the Army Gray Eagle platform. The concurrent activation included facilities, equipment, tooling, training, and the majority tech data needed for the Army workload. As a result, the Army experienced minimal cost for tech order modification. WR-ALC Commodities Maintenance Group has initiated agreements with the US Navy Fleet Readiness Center-Southeast (FRC-SE) in Jacksonville, FL to establish a formal Continuity of Operations plan for both the WR-ALC and FRC-SE to share industrial capability/capacity during times of need (surge requirements, piece of equipment goes down, etc.).

3. Senator INHOFE, LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, what impact does aging infrastructure have on each of the services' ability to increase or sustain readiness?

LTG WYCHE. Among the challenges of an aging infrastructure is the fact that those facilities built for WWII (60 percent of AMC's overall real property inventory) were not designed for sustaining the Army's current and future equipment using modern industrial processes. In older facilities, production lines are often configured to fit the facility, with the corresponding impacts on efficiency and cost effectiveness. The Command's vision for the OIB infrastructure is modern, flexible, and efficient facilities which are designed to enable current and future industrial best practices. AMC's approach to this challenge is two-fold. Where older facilities are structurally sound, but have failing facility components (e.g. HVAC, electrical, roofing, etc.), the Command seeks opportunities where is more economically prudent to restore or modernize these facilities vice replacing them. Using operating funds, this approach often addresses the problem more quickly and at less cost. The results often reset the service life of these facilities. In other cases, the cost-effective or operationally-effective solution is to fully recapitalize the facilities. These facilities are designed to house modern industrial processes and facility standards (e.g. Quality of Work Environment improvements such as fire safety, lighting, HVAC, latrines, etc.), to be adapted quickly for new or expanded demands, and to reduce overhead costs particularly in terms of energy. With known demands across the AMC's capabilities, AMC estimates an annual need for \$100 million in Restoration & Modernization (R&M) and \$300 million for MCA. Aging facilities limit the OIB's ability to ramp-up production to meet the Warfighter's needs.

VADM GROSKLAGS. The age and capability of existing infrastructure does not support the complexity of new system requirements (i.e. increased power, HVAC cooling for equipment test benches and larger servers, security requirements, etc.). The majority of Commander, Fleet Readiness Center support infrastructure consists of obsolete "World War II era" facilities in support of functions, systems and technologies for which they were not designed. Approximately 76 percent of the Depots' production and manufacturing footprint (square footage) is more than 40 years old (Naval Facilities Command (NAVFAC) useful life). Approximately 51 percent of overall facilities footprint is more than 67 years old (NAVFAC Physical Life). Changes in aircraft size and complexity over the last 20 years present new challenges. The Super Hornet is larger than the older F/A-18. The MV-22 replaced the CH-46 and is considerably larger and more complex. The F-35, the multiservice next generation aircraft, presents new maintenance requirements. Considering the changes in the aircraft and our dated facilities, many aspects of maintenance have become more challenging and complex maintenance tasks are more difficult or limited at best.

VADM MOORE. With respect to our Naval Shipyards, the age of facilities is not a definitive indicator of the ability of a facility to serve its intended function. Facilities constructed for a use that is no longer relevant and that are repurposed for

other uses can imply a loss of efficiency to conduct mission. For this response, the term "aging infrastructure" refers to buildings no longer used for their original purpose and have materially degraded due to a lack of sustainment and recapitalization. Aging facilities, dry docks, and equipment infrastructure degrade the Shipyards' ability to support fleet schedule and readiness requirements. Using Navy Figure of Merit assessment methodology, Naval Shipyard mission-essential facilities are in worse condition (average score 65) than the overall Navy's shore infrastructure (average score 80). Naval Shipyard facilities are WWII vintage and were built for conventional ship construction vice modern nuclear ship repair processes. The average age of Naval Shipyard facilities is 62 years, with some up to 200 years old. Average Naval Shipyard capital equipment (acquisition cost greater than \$250K) age is 21 years old and increasing; this is six years greater than the industry-standard effective service life average age. Naval Shipyard capital equipment is typically obsolete, unsupported by the original equipment manufacturers, and at operational risk. Continued reliance on this significantly aged Naval Shipyard infrastructure increases submarine and aircraft carrier availability costs and places schedules at risk. This risk is caused by the mismatch in capacity and workload at the shipyards, and having aging infrastructure does not help to increase capacity. This results in passing workaround costs to the fleet and ultimately impacting Operational Availability when equipment downtime or degraded facilities impact critical path maintenance requirements. NAVSEA and the Naval Shipyards are working with CNIC, NAVFAC, and the fleet to develop an aligned, integrated, and defensible strategic infrastructure plan for the Naval Shipyards. This study's objective is to streamline shipyard industrial processes to optimize availability schedules and execution. The study is expected to be completed by the end of fiscal year 2017. Shipyard layout, material handling equipment, logistics flow, new technology insertion, and overall process density all impact the work efficiency. This analysis will not be constrained by the current layout of utilities, logistics, buildings, or equipment and will provide a prioritized, consolidated list of Naval Shipyard infrastructure investments (MILCON, SRM special projects, and OPN capital equipment) needed to improve throughput and return on investment at the Naval Shipyards and their detachments. For the Regional Maintenance Centers, the private-sector contractor facilities used are monitored through maintenance of Master Ship Repair and NAVSEA dry-dock certifications. While private facilities have aging challenges similar to those of the Naval Shipyards, investment decisions for maintenance and modernization of these facilities are funded and executed by the respective private contractors.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. Air Force Policy Directive (AFPD) 10-2, Readiness, defines AF readiness as the ability of United States Air Force forces to deliver their designed capabilities without unacceptable delay. Additionally, it states that the AF will effectively manage its resources by providing for the training, morale, health, and fitness of its personnel and will provide the equipment, supplies, and infrastructure required to execute all tasks related to the AF mission. The average age of AFSC infrastructure now exceeds 40 years. The AF has primarily funded only New Mission MILCON requirements since fiscal year 2009. With the growing list of unfunded Existing Mission MILCON requirements and an increasing backlog of facility maintenance, repair, and construction requirements (\$2.5 billion in AFSC alone), management of aging facilities has become a daunting task of operational risk management. Commanders at all levels are being forced to forgo facility projects which may increase morale, improve efficiencies, reduce customer cost, potentially create energy savings, and increase readiness in order to ensure work areas are safe, usable, and available for employees and that basic readiness requirements are being maintained. AFSC readiness is tied more closely to its infrastructure than many other AF units. As facilities continue to age without being modernized or replaced, AFSC has no choice but to rely on these older facilities which are repair intensive and not as flexible as new facilities. AFSC Air Logistics Complexes (ALCs) and Air Base Wings (ABWs) cannot efficiently/effectively function without usable facilities to support mission/readiness requirements. As facilities increase in age and funds to sustain/repair them decrease, the number of backlogged repair requirements increase. Each new unfunded requirement exponentially increases the risk of mission failure and decreased readiness. The impact of aging facilities to AFSC readiness is clearly represented in the following examples: At Oklahoma City Air Logistics Complex (OC-ALC) an aging boiler deaerator tank, which supplies steam, chilled water, and compressed air to over 13 depot maintenance facilities, failed. This single failure shut down critical chemical cleaning and plating lines, driving a production delay that cost the ALC \$74,000 in indirect time and \$20,000 in overtime to make up for the lost production. At Warner-Robins Air Logistics Complex (WR-ALC) nu-

merous structural issues identified in a building constructed in 1944 require production personnel to vacate the area when wind speeds reach 35 knots (40 mph). This joint use facility is a wooden structure and houses the AF's only aircraft fire bottle overhaul workload. There have been six (6) evacuations since the initial finding in April 2015 resulting in a work stoppage that affects readiness for both the ALC and ABW. Bottom line: As facilities continue to age and are not modernized or replaced, AFSC faces an increasing challenge to comply with this Directive and deliver capabilities without delay.

4. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, sustainment costs account for greater than 70 percent of the life-cycle costs of a weapon system. Is weapons system sustainment being adequately incorporated into initial acquisition planning for new weapon systems to ensure these systems can be efficiently and effectively maintained over their life cycles?

LTG WYCHE. While two primary mechanisms are in place to incorporate sustainment considerations into early acquisition planning, their inconsistent application in Army materiel system efforts may sub-optimize life cycle sustainment. The first mechanism is found in the current Joint Capabilities Integration Development System, which contains a mandatory Sustainment Key Performance Parameter (S-KPP) that includes two primary components (operational availability and materiel availability) and two supporting Key System Attributes (KSA) (reliability and operations and support costs). When all elements of this KPP are applied to a developmental system it should drive higher reliability and lower sustainment costs. Part of the Army's challenge is having the ability to see itself and ensure compliance in meeting a system S-KPP. Although the Army Requirements Oversight Council process has been reinvigorated in the past few years, the S-KPP has been waived to a lower KSA (or waived altogether) in several requirements documents as a means for accelerating the acquisition strategy to deliver needed capabilities to the Army more expeditiously. The second mechanism is the Life Cycle Sustainment Plan (LCSP), which the Army requires for all acquisition category level Army programs. DOD and Army recognize the importance of the LCSPs to assess system cost along its lifecycle. Critical reviews of LCSPs, combined with emerging results of the Army's Operational and Sustainment Reviews (OSRs), have improved the content and staffing process of Army LCSPs and emerging results from OSRs are providing insights into the type of data collection needed within programs to better inform the life cycle cost picture of Army systems. Finally, the Army Materiel Command has partnered with the Assistant Secretary of the Army for Acquisition, Logistics, and Technology to develop Army policy to clearly define roles, responsibility and criteria for programs to transition to sustainment. This policy will enable detailed planning, and forecasting to ensure adequate funding as programs transition from production and deployment to sustainment.

VADM GROSKLAYS. The Department of the Navy (DON) designed its acquisition process, commonly referred to as the Navy Gate Review process, to ensure there is no gap between the Requirements and Acquisition organizations so that the Navy understands the relationship between requirements, technical feasibility, and cost. The process requires the Navy/Marine Corps operational requirements leadership and acquisition leadership to agree, and repeatedly affirm that agreement throughout the development, acquisition, and sustainment of a system. The DON Gate Review process was designed to ensure that cost and affordability are managed with the same discipline and rigor as traditional performance requirements. The DON's Program Managers address the basic principles to get the requirement right, perform to a stable plan, and make every dollar count at each Gate Review wherever they are in their program's life cycle so that sustainment and its associated costs are no longer an afterthought. DON acquisitions emphasize stable designs as well as modularity and open architecture to reduce cost, extend service life, and increase acquisition agility, including a focus on operating and support (O&S) cost early in design. Earlier engagement on O&S and disposal costs enables Program Managers to more fully evaluate system affordability and possible trade space leading to better understanding of Total Cost earlier in the process, which in turn allows better informed decisions. The DON's Program Managers are tasked with understanding what drives those costs and formulating a 'should cost' strategy to meaningfully reduce program cost or risk without substantively impacting key requirements regardless of what phase the program is in.

VADM MOORE. The Department of the Navy (DON) designed its acquisition process, commonly referred to as the Navy Gate Review process, to ensure there is no gap between the requirements and acquisition organizations so that the Navy understands the relationship between requirements, technical feasibility, and cost. The process requires the Navy/Marine Corps operational requirements leadership and

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LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. Yes, the AF Lifecycle Management Center (AFLCMC) stood up a Logistics (LG-LZ) Directorate that is focused on ensuring that product support is adequately planned and implemented for all of our acquisition programs. AFLCMC/LG-LZ has developed and continues to develop and deploy standard processes, tools, templates, and training across the 12 product support elements, Lifecycle Sustainment Plans and Product Support Business Case Analyses (BCAs). The LG-LZ provides subject matter expert (SME) support to the program offices to assist them with their product support planning to ensure their plans are adequate and executable. The LG-LZ also reviews and coordinates on the Lifecycle Sustainment Plans (LCSPs) that must address all product support elements in their sustainment planning. AFLCMC also has assigned Product Support Managers (PSMs) within each of the Programs. The PSMs report directly to the Program Manager (PM) and are responsible for product support planning for that specific program. AFLCMC/LG-LZ also works closely with SAF/AQD to ensure adequate, clear, and concise policies are in place that require the appropriate product support planning within the acquisition process. AFLCMC has done a tremendous job in transitioning from the three previous product centers focused on acquisition to one integrated Lifecycle Management Center.

CIVILIAN PERSONNEL

5. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, is the existing OPM hiring process sufficient to meet your manning needs?

LTG WYCHE. No, although there are many existing OPM hiring authorities such as temporary, term and Schedule A hiring authorities, Veterans' Recruitment Appointment, and the recently approved NDAA fiscal year 2017 Direct Hiring Authority (DHA) that allow the Army Materiel Command (AMC) Defense Industrial Base facilities to meet manning needs and enhance our ability to attract and hire highly qualified candidates. However, these authorities cannot always address an immediate need for a flexible workforce. For example, at reimbursable sites with a six-year contract, current hiring authorities can only be used to hire temporary personnel for up to four years. Therefore, the sites are put in a dilemma to either hire a permanent workforce and risk having to conduct reduction-in-force at the conclusion of the workload or be subject to pre-planning within a few years to rehire and retrain new personnel to fulfill contract requirements. The largest hurdle for AMC activities is the USAJOBS application tool, because it is the only existing federal hiring application system for all job seekers. For the blue collar applicants, this system is not user-friendly, difficult to navigate, time consuming and more complex than the skills they are required to have in the positions for which they are applying. There is also a lengthy process from the closing of the vacancy announcement to the onboarding date, including extensive delays due to security clearance requirements. All of these items impact readiness when trying to meet immediate and sporadic mission surges.

VADM GROSKLAYS. Yes, the current hiring authorities and flexibilities authorized by OPM are sufficient.

VADM MOORE. Yes, the current hiring authorities and flexibilities authorized by OPM are sufficient.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. No, the hiring process takes entirely too long. Hiring actions for the Air Force Sustainment Center (AFSC) take on average 150 days for external hires and 80 days for internal hires. AF, Air Force Materiel Command (AFMC), Air Force Personnel Center (AFPC), and AFSC have to drive more process improvements into the hiring timelines, measure results with 100 percent accuracy (we are still not there yet), and expand flexibilities within laws, regulations, policy, etc. Specific areas AFSC is trying to improve are as follows:

1. The AF must take the initiative and work with stakeholders to map the security clearance process, as it hinders our employees from performing their workload from hiring date until their clearances are approved.
2. The AF needs to work with stakeholders to figure out a way to pay alternative medical facilities to do drug testing and physicals. Right now the regulation states we can, but Financial Management (FM) has no methodology to pay those providers directly for services rendered, as those that are hired are not yet part of the government system.
3. Funding needs to be available and invested to move on-boarding and Engineering (EN) recruiting from an enhanced version of an internal Microsoft® capability (SharePoint) onto an acceptable iCloud for enterprise-wide accessibility. These state-of-the-art designs can benefit the AF and give significant returns on investment, but are hindered by lack of Human Resource (HR) system development outside of the Defense Civilian Personnel Data System (DCPDS) which houses all civilian personnel documents.

6. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, are your services utilizing the new hiring authorities in the fiscal year 2017 NDAA?

LTG WYCHE. AMC is working closely with the Department of the Army to review and provide feedback on the implementation guidance on the following two authorities: Temporary Direct Hire Authority (DHA) for Domestic Defense Industrial Base Facilities (Sec 1125) and Temporary Personnel Flexibilities for Domestic Defense Industrial Base Facilities Civilian Personnel (Sec 1132).

VADM GROSKLAGS. The Fleet Readiness Centers (FRCs) are not currently utilizing the new hiring authorities in the fiscal year 2017 NDAA, as we are awaiting implementing guidance. DOD/DoN implementing guidance is anticipated to be issued in the near future, which would allow FRCs to utilize the new hiring authorities, potentially in time for upcoming graduations.

VADM MOORE. The Department of the Navy is still creating service-specific instructions. However, NAVSEA has not been negatively impacted in its hiring efforts and appreciates Congress' interest and concern on this matter.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. AFSC is positioned to use Direct Hiring Authority (DHA); however, we have not received the delegation of authority from the Office of the Secretary of Defense (OSD) to actually hire employees. AF anticipates the OSD delegation will be made available in June 2017 and subsequent delegations (AF, Major Commands) will follow soon after.

7. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, what more can Congress do to enable you to hire the civilians you need to increase readiness?

LTG WYCHE. Maintaining and increasing readiness is the Department's top priority. 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. Improving personnel practices is a priority, and the Department will continue to study and pursue opportunities to streamline processes and reduce recruitment times. The Department appreciates Congress' interest in assisting in this endeavor.

VADM GROSKLAGS. The fiscal year 2017 NDAA direct hiring authorities will provide the Fleet Readiness Centers (FRCs) the ability to reduce cycle time and improve the time it takes to staff workload requirements. In considering all depots under the Commander, Fleet Readiness Centers, FRC-South West (FRC-SW) has experienced the greatest struggle in being able to adequately staff to support current depot workload requirements. Recent salary surveys for FRC-SW have indicated a need to increase the salary rates for several occupational series to remain

competitive with local, private sector employers. The disparity in pay has resulted in a depletion of local skilled labor candidate pools. The Naval Air Systems Command has submitted a Federal Wage System Special Rate Request for San Diego, California, through the Department of Navy Office of Civilian Human Resources (OCHR). Approval of the Federal Wage System Special Rate Request for San Diego would afford the ability to offer higher starting salaries to candidates; thereby, increasing the offer acceptance rate of positions directly supporting fleet readiness.

VADM MOORE. With the hiring efforts of the last two fiscal years, the four Naval Shipyards have processes and procedures in place to support the recruiting, hiring, onboarding and initial training necessary to meet the identified mission. As always, the Navy appreciates the support of the Congress; however, improved Department of Defense budget stability would help the Naval Shipyards in their ability to maintain a steady hiring rate, which would allow them to better manage attrition and fluctuations in workload. Likewise with the Navy's Regional Maintenance Centers (RMC), improved Department of Defense budget stability would help to improve the RMCs' ability to meet their civilian staffing requirements and maintain a steady hiring rate, which in turn would allow them to better manage attrition and workload increases. Without a stable budget, the hiring processes for the RMCs are in a continual state of starts and stops, which hinders them from reaching their optimal manning levels.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. Maintaining and increasing readiness is the Department's top priority. 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. Improving personnel practices is a priority, and the Department will continue to study and pursue opportunities to streamline processes and reduce recruitment times. The Department appreciates Congress' interest in assisting in the foregoing.

8. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, what is the overall status of staffing at our depots, shipyards, arsenals, and ammunition plants?

LTG WYCHE. Staffing shortfalls at AMC depots, arsenals, and ammunition plants exist in all areas of our operations. Many sites are understaffed to support mission requirements due to increased workload, attrition and challenges in recruiting that have resulted in an imbalance in the permanent and term workforce composition. Retirements/separations and time limited appointments leave a knowledge vacuum that can jeopardize current and future customer support. It is estimated that approximately 20 percent of the workforce in the top fragile and critical skill sets are eligible for retirement. Employees on time-limited appointments that have many years of experience are likely to seek more stable employment. In many locations, large numbers of personnel actions are on hold or were paused, due to recruitment challenges and most recently the hiring freeze and its exemption process. Many sites are operating at roughly 90 percent of their onboard strength against their requirements. While management can use some of the available hiring and retention flexibilities, the inability to offer more permanent or longer term employment hinders them from having a more stable workforce.

VADM GROSKLAGS. The following is the status of civilian staffing at our three aviation depots (Fleet Readiness Centers—FRCs): SITE On board as of 30 June 2017 (NWCF Only) Target (NWCF Only) Shortfall FRC Southwest 2,906 3,317—411 FRC Southeast 3,616 3,780—164 FRC East 3,548 3,564—16 TOTAL 10,070 10,661—591 The fiscal year 2017 NDAA direct hiring authority will be a powerful lever in addressing this shortfall at FRC SW.

VADM MOORE. The four Naval Shipyards are predicted to end fiscal year 2017 with a total end strength of 34,068 full-time employees (FTEs). This is above the 33,850 FTEs projected for fiscal year 2017 and allows the Navy to more rapidly increase its Naval Shipyard workforce to the required 36,100 FTEs by fiscal year 2020. The Navy's four Regional Maintenance Centers (RMC) have a current end strength of 2,896. With 2,793 civilian personnel currently onboard, the RMCs' aggressive hiring plans with their processes and procedures that support the recruiting, hiring, onboarding and initial training necessary to meet the identified mission have been largely successful, despite the challenges of uncertain budgets and are currently tracking to fill by the end of the year.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. See chart below:

CIVILIAN MANNING REQUIREMENTS (5 May 2017)

| | Program Element Code (PEC) | Ogden Air Logistics Center (OO-ALC) | Oklahoma City Air Logistics Center (OC-ALC) | Warner Robins Air Logistics Center (WR-ALC) | TOTAL REQS |
|--|----------------------------|-------------------------------------|---|---|--------------|
| Working Capital Fund (WCF)— Unit Manning Document (UMD) | 78211A | 8036 | 10403 | 7554 | 25993 |
| Other—UMD | Multiple | 32 | 3 | 4 | 39 |
| Total UMD Authorizations | N/A | 8068 | 10406 | 7558 | 26032 |
| WCF Assigned to UMD MPCN | 78211A | 7549 | 9441 | 6723 | 23713 |
| Other Assigned to UMD MPCN | Multiple | 28 | 3 | 4 | 35 |
| Total Assigned to UMD MPCN | N/A | 7577 | 9444 | 6727 | 23748 |
| Percentage of Assigned vs UMD | N/A | 94% | 91% | 89% | 91% |
| WCF—Overhire (Psuedo)—78211A | 78211A | 747 | 420 | 197 | 1364 |
| Other Overhire (Psuedo) Assigned | Multiple | 2 | 2 | 2 | 6 |
| Total Overhire (Psuedo) Assigned | N/A | 749 | 422 | 199 | 1370 |
| Total Assigned (UMD & psuedo) | ALL | 8326 | 9866 | 6926 | 25118 |
| DELTA | ALL | -258 | 540 | 632 | 914 |
| Percentage of Assigned vs Target w/ Overhires (OH) | N/A | 103% | 95% | 92% | 96% |

SOFTWARE MAINTENANCE

9. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, how are each of you integrating software maintenance into your core depot-level maintenance and repair operations?

LTG WYCHE. The Army is currently working initiatives to integrate software maintenance into our core depot-level maintenance and repair operations. First, we are in the process of establishing our software depot maintenance core capability. During this previous budget cycle for fiscal year 2019–23, we developed a process to determine the depot maintenance core requirements for software. Our goal is to ultimately be able to report the needed core hours in the Biennial Core Report to Congress. This process also includes establishing Army regulatory guidance on software depot maintenance core capabilities. Second, we are in Phase III of our manpower initiative to move contractor manpower needed to support software workload to organic support. Phase I and Phase II has resulted in 96 authorizations with total cost avoidance of \$103.9 million.

VADM GROSKLAYS. The Naval Air Warfare Center Aircraft Division and Naval Air Warfare Center Weapons Division were designated by the Secretary of the Navy as Centers of Industrial and Technical Excellence (CITE–10USC2474) which facilitates their ability to partner across private (and public) sectors to execute depot-level maintenance and product support for software for the Naval Aviation Enterprise (NAE). The NAE initiates its software maintenance planning prior to award of contract with the conduct of a decision tree analysis for determining which Computer Software Configuration Item (CSCI) will generate a Core sustaining workload (10USC2464). As a part of the request for proposal, specifically sections L and M of contract and statement of work, we ask the vendor to identify the enablers e.g. data rights, development and test environments, test procedures, according to a Software Sustainability Package (SSP) Data Item Description. The SSP is to be used in conjunction with a Contract Line Item Numbers (CLINs) or CLIN Options to procure the executable software and source files for a CSCI and is the primary software sustainment document for each CSCI which could be maintained by non-original equipment manufacturers (OEMs). During the latter stages of program develop-

ment, a business case analysis is conducted to determine how each CSCI will be maintained and by whom, e.g. OEM, organic (Government), third party vendor. A software support activity is stood-up at one of the Warfare Centers to provide for the sustainment of the software for both organic development and acquisition management of CSCIs.

VADM MOORE. The Navy integrates software maintenance in accordance with its Joint Fleet Maintenance Manual that directs all surface ship and submarine software maintenance be integrated into depot-level maintenance and repair availabilities. New or updated software updates are done by the Original Equipment Manufacturer (software developer) in concert with a designated Naval Warfare Center to ensure proper integration into Navy platforms.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. The AF considers software maintenance as a part of depot level maintenance. As such, the AF has been reporting software as part of the annual AF 50-50 report, the biennial core logistics capabilities (CORE) report, and executing the workload within the AF Working Capital Fund for over 30 years. The Air Force Sustainment Center (AFSC), with support from Air Force Materiel Command (AFMC) Logistics Directorate and SAF/AQD, continues to review the CORE software requirements to ensure that the organic enterprise has the expertise and capacity to support the warfighter. The AF software CORE requirement for fiscal year 2017 is 4.271 million man-hours with AFSC estimated to produce 4.888M man-hours across the three Air Logistic Complexes (ALCs). The ALCs provide subject matter expertise to assist program offices to design for maintainability and depot activation. AFSC works with the program offices to embed depot software engineering personnel with the Original Equipment Manufacturers (OEM) during Engineering Manufacturing and Development (EMD) for software intensive major weapon systems to ensure low risk transitions to organic depot sustainment by IOC+4. The AF maintains centers of excellence at each depot focused on the weapon systems that they are assigned. This allows the AF to build and maintain the knowledge base to support legacy systems, and build support for new weapon systems as they are developed and deployed.

10. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, how does each service plan to address the growing importance of software maintenance on your depot-level sustainment operations?

LTG WYCHE. We are committed to ensuring the Strategic Readiness of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) solutions through synchronization and integration of life cycle sustainment priorities with C4ISR Program Executive Officer/Program Manager requirements. The continued budget constraints and lack of consistent funding has created concerns when it comes to emerging and sustaining software requirements. In order to address some of the concerns, we are combining our Enterprise License Agreements with higher headquarters in order to reduce costs; working with the Assistant Secretary of the Army for Acquisition, Logistics, and Technology community to develop sustainable solutions, identify depot maintenance efforts that are focused on readiness, and working to grow the organic software maintenance capabilities. In Phase III of our manpower initiative, we have regionalized some of the support teams which have resulted in either cost savings or cost avoidances. As we move forward and new systems come into the portfolio, it is critical that predictable and consistent funding becomes available. In addition, The Army's science and technology community is addressing the growing importance of software maintenance by employing modular open systems architecture, which will allow for faster, more flexible hardware and software upgrades for depot-level sustainment operations. This effort is known as hardware-software convergence. Older systems used single-purpose hardware and software which lacked flexibility and competed for limited resources on a given platform. Army depots are updating older hardware and hardware-based architecture to newer, virtually-replicated functions in software that will reduce overall lifecycle costs, increase platform interoperability and reduce platform size, weight, power and cooling requirements. Modular open systems architectures enable a "plug and play" environment wherein new capabilities can be seamlessly integrated into older platforms. For example, the Army will benefit from its incorporation of modular open systems architecture in the Future Vertical Lift program through reduced burden on Army aviation depots at Corpus Christi Army Depot. This architecture reduces Army depot requirements to sustain additional components on platforms and eliminates redundant Government off-the-Shelf (GOTS) items, saving time, money and other logistical burdens. Congress' continued atten-

tion to the Defense Department's use of modular open systems architecture is appreciated.

VADM GROSKLAGS. The Naval Air Systems Command (NAVAIR) has been addressing the growing importance of software maintenance as a depot-level requirement for some time. The Secretary of the Navy designated our two primary Warfare Centers as Centers of Industrial and Technical Excellence (CITE-10USC2474) to enhance partnering for depot maintenance and product support. We have implemented formal policies, processes, and procedures through Standard Work Packages to ensure thorough life cycle software sustainment support for our weapon systems, especially for software. Our Software Engineers are engaged early and upfront in the development of the software for new weapon systems and typically stay with that Program through fielding and operational employment. Software Engineers support the NAVAIR Programs with software development contract management to ensure the efficient and effective transition from development to sustainment is planned and can be executed. We're investing in critical infrastructure to include laboratories and software support activities to leverage capabilities and capacity to ensure the most efficient, effective, and responsive software maintenance support. We continue to invest in the development of the workforce and have developed and delivered classroom and on the job training in the areas of open architecture standards, implementation of the Agile development process, complex algorithm development, safety and secure coding standards. We're focusing on the early procurement of technical data/intellectual property and a software supportability package to enable us to reproduce, recreate, or recompile critical software for the sustainment of the weapon system. We continue to emphasize the importance of software maintenance and sustainment because, unlike hardware, the software is the enabler to integrating and interoperating among multiple systems and subsystems in the matrix of our ever evolving battlespace.

VADM MOORE. The Navy Joint Fleet Maintenance Manual (JFMM) outlines the process and requirements to deliver alterations to the Fleet to include software maintenance updates and these address the growing importance of software maintenance on our depot-level sustainment operations. Navy software Original Equipment Manufacturer (OEM) developers continue to move to common software libraries that enable continuous software maintenance in stride with the development of warfighter capability enhancements. The testing, certification, and delivery of these software maintenance updates are planned periodic warfighter improvements to enable a reduction in the overall cost. An increasing number of Navy OEM software developers have adopted the Agile software development process that allows for improved government involvement and engagement in the software development process as well as improved software quality that reduces software maintenance requirements.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. Software maintenance workload continues to grow significantly in both new and legacy weapon systems. In order to sustain our modern weapon systems, Air Force Sustainment Center (AFSC) is institutionalizing the involvement of depot organic software engineers and computer scientists in all aspects of the Software Development Lifecycle (SDLC) to include requirements analysis, design, implementation, integration, and test, including platform level software integration capability. AFSC's goal is to utilize organic resources to sustain all sub-systems for CORE workload designated systems which are projected to experience change throughout the weapon system's lifecycle. The highly integrated nature of modern systems requires system architectural knowledge to properly consider impact of software changes to the overall system. The AF continually evaluates the right mix of organic and contract support of software centric systems. The AF works hard to develop effective partnerships with industry to leverage the strengths of the depots and private industry to deliver war winning cost effective capability to the war fighter. AFSC continues to place emphasis on infrastructure investment; cybersecurity; Scientist, Technology, Engineering and Math (STEM) development and recruitment programs; and industry leading process methodologies, like the Agile Software Development framework, to ensure the organic workforce has the resources, capacity, technical competence, and tools necessary to support emerging weapon systems.

MUNITIONS

11. Senator INHOFE. What is your assessment of the state of the munitions industrial base?

LTG WYCHE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, the munitions industrial base faces significant challenges in meeting cur-

rent operational requirements. Mortar, artillery, missile and bomb requirements pose the greatest challenges. This is primarily due to facility capacity and workforce capabilities. Today's organic ammunition facilities and infrastructure were created during the buildup prior to World War II. Although some modernization efforts have been accomplished, we need additional modernization funding in order to maintain and revitalize critical production base capabilities. Workforce challenges include impacts from sequestration, which resulted in a loss of corporate knowledge and our inability to retain certain desired skill sets. The current hiring freeze has further compounded our workforce challenges.

VADM GROSCKLAGS. The Department is concerned about the overall health of the munitions industrial base. Since the end of the Cold War, the munitions development and production market has declined. This decrease has resulted in aggressive competition for a limited number of new munition program opportunities. Within the munitions sector, two key prime contractors, Raytheon Missile Systems (a division of the Raytheon Company) and the Lockheed-Martin Company account for approximately 85–90 percent of the Department of Defense's (DOD) munitions procurement funding. While there are small pockets of progress in expanding the munitions industrial base, as the Department of the Navy's successful efforts to mature Orbital-ATK from a small business operation to a prime contractor for the Advanced Anti-Radiation Guided Missile program, other similar efforts are not on the horizon. While many industrial sectors that support our national security requirements are also supported by commercial markets, the DOD munitions industrial sector is mostly defense-unique. As a result, the munitions industrial base faces a number of challenges such as sustaining munition design and engineering teams, and sustaining munitions sub-tier suppliers. The munitions industrial sector is routinely impacted by shifts in DOD demand as a result of various factors, but mostly due to budget fluctuations/constraints, the initiation or drawdown of conflicts, and the reprogramming of resources from munitions accounts to pay for other higher priorities due to the fungibility of munitions accounts. As a result of these concerns (and others), the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (DASD(MIBP)) is initiating a new munitions industrial base resiliency study. One of the study goals is to inform the development of a DOD-wide munitions strategy to ensure the munitions industrial base remains healthy and is poised to meet warfighter demands in a cost effective and timely manner. The Department of the Navy (along with all other Services) is participating in this effort. DASD(MIBP) anticipates this study to complete within the next twelve months.

VADM MOORE. The Department is concerned about the overall health of the munitions industrial base. Since the end of the Cold War, the munitions development and production market has declined. This decrease has resulted in aggressive competition for a limited number of new munition program opportunities. Within the munitions sector, two key prime contractors, Raytheon Missile Systems (a division of the Raytheon Company) and the Lockheed-Martin Company account for approximately 85–90 percent of the Department of Defense's (DOD) munitions procurement funding. While there are small pockets of progress in expanding the munitions industrial base, as the Department of the Navy's successful efforts to mature Orbital-ATK from a small business operation to a prime contractor for the Advanced Anti-Radiation Guided Missile program, other similar efforts are not on the horizon. While many industrial sectors that support our national security requirements are also supported by commercial markets, the DOD munitions industrial sector is mostly defense-unique. As a result, the munitions industrial base faces a number of challenges such as sustaining munition design and engineering teams, and sustaining munitions sub-tier suppliers. The munitions industrial sector is routinely impacted by shifts in DOD demand as a result of various factors, but mostly due to budget fluctuations/constraints, the initiation or drawdown of conflicts, and the reprogramming of resources from munitions accounts to pay for other higher priorities due to the fungibility of munitions accounts. As a result of these concerns (and others), the Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (DASD(MIBP)) is initiating a new munitions industrial base resiliency study. One of the study goals is to inform the development of a DOD-wide munitions strategy to ensure the munitions industrial base remains healthy and is poised to meet warfighter demands in a cost effective and timely manner. The Department of the Navy (along with all other Services) is participating in this effort. DASD(MIBP) anticipates this study to complete within the next twelve months.

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Lt. Gen. LEVY. In fiscal year 2018, the munitions industrial base will be funded to produce at their current maximum capacity to help replenish preferred munitions (Small Diameter Bomb I [SDB-I], Joint Direct Attack Munition [JDAM], Hellfire)

expended in overseas contingency operations and to increase inventory stockpiles. The DOD is continuing to take the necessary actions to increase industry production capacity for weapons with sustained high demand levels. However, industry still needs a clear demand signal of consistent funding across the FYDP and strategic investment to continue required industrial base growth and plan for future production levels of preferred munitions.

12. Senator INHOFE. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, what is the current ability of the industrial base to support a rapid buildup of inventories?

LTG WYCHE. The ability to ramp up quickly is largely dependent on the type of parts and the vendors who support those items. We do have supply chains that are easier to ramp up and respond but the vast majority of our supply chains are much slower to expansion. Demand signal and consistent/predictable funding are key inputs to improving the reaction of the supply chain to requirements. The munitions industrial base would have significant challenges if required to support a rapid buildup of inventory. Analysis of the projected increases to the Army's requirements, based on current planning guidance, show that we do not have the surge capacity to produce or procure the required quantity of mortars, artillery, demolition items, medium caliber munitions, missiles, or bombs. There is also a large amount of un-serviceable ammunition stored in our storage depots, we need to pursue methods to demilitarize the un-serviceable ammunition in storage. Facility capacity and the availability of additional trained personnel are both factors that limit our surge capability.

VADM GROSKLAGS. Munitions programs are more readily adaptable to production line and tooling investments as compared to large aircraft or ships programs. However, the rapid buildup of munitions inventories remains challenging because of material lead-times, skilled work-force development timelines, supply-chain response times and design/production requirements that ensures our munitions operate effectively and safely in severe warfighting operating environments (e.g. across the electromagnetic spectrum, aircraft/shipboard environments, etc.). The Department of Defense provides resources to the munitions industrial base to ramp-up production in preparation for Major Combat Operations and when the Nation is engaged in conflict; DOD quickly reduces those resources when hostilities diminish or cease. Frequently, the DOD reprograms resources from munitions accounts to pay for other higher priorities as these accounts are more 'fungible'. This cycle of rapid ramp-ups followed by declines of demand and production adds risk and significant capacity management challenges to munitions prime contractors and their critical sub-tier suppliers. This risk is exacerbated because many sub-tier suppliers do not have the diversity of programs or products from other non-defense markets to support their design and production skills. The Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (DASD(MIBP)) has attempted to better manage these industrial base challenges with assessments of data from their Sector-by-Sector, Tier-by-Tier (S2T2) data repository. S2T2 is a carefully compiled data base of vendor capability, supply chain issues and manufacturing details regarding the production of critical components, platforms and technologies. DASD(MIBP) analysis consistently identifies the munitions sector as being under stress and at risk to meet the demands of future warfighting requirements. DASD(MIBP) is initiating a new munitions industrial base resiliency study in fiscal year 2017. One of the study goals is to inform the development of a DOD-wide munitions strategy to ensure the munitions industrial base remains healthy and is poised to meet warfighter demands in a cost effective and timely manner. The Department of the Navy (along with all other Services) is participating in this effort. DASD(MIBP) anticipates this study to complete within the next twelve months.

VADM MOORE. Munitions programs are more readily adaptable to production line and tooling investments as compared to large aircraft or ships programs. However, the rapid buildup of munitions inventories remains challenging because of material lead-times, skilled work-force development timelines, supply-chain response times and design/production requirements that ensures our munitions operate effectively and safely in severe warfighting operating environments (e.g. across the electromagnetic spectrum, aircraft/shipboard environments, etc.). The Department of Defense provides resources to the munitions industrial base to ramp-up production in preparation for Major Combat Operations and when the Nation is engaged in conflict; DOD quickly reduces those resources when hostilities diminish or cease. Frequently, the DOD reprograms resources from munitions accounts to pay for other higher priorities as these accounts are more 'fungible'. This cycle of rapid ramp-ups followed by declines of demand and production adds risk and significant capacity management challenges to munitions prime contractors and their critical sub-tier

suppliers. This risk is exacerbated because many sub-tier suppliers do not have the diversity of programs or products from other non-defense markets to support their design and production skills. The Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (DASD(MIBP)) has attempted to better manage these industrial base challenges with assessments of data from their Sector-by-Sector, Tier-by-Tier (S2T2) data repository. S2T2 is a carefully compiled data base of vendor capability, supply chain issues and manufacturing details regarding the production of critical components, platforms and technologies. DASD(MIBP) analysis consistently identifies the munitions sector as being under stress and at risk to meet the demands of future warfighting requirements. DASD(MIBP) is initiating a new munitions industrial base resiliency study in fiscal year 2017. One of the study goals is to inform the development of a DOD-wide munitions strategy to ensure the munitions industrial base remains healthy and is poised to meet warfighter demands in a cost effective and timely manner. The Department of the Navy (along with all other Services) is participating in this effort. DASD(MIBP) anticipates this study to complete within the next twelve months.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. The munitions sector is primarily a defense-unique industrial sector. This sector is routinely impacted by significant shifts in DOD demand as a result of various factors, but mostly due to the initiation or drawdown of conflicts. Resupply of key munitions used in conflicts, as well as surge requirements for those munitions during conflicts stress the industrial base. Numerous bottle-necks with critical sub-tier suppliers preclude a rapid response to these increases in requirements, causing delays in deliveries and increased cost to the Department. The munitions industrial base has supported recent DOD efforts to increase production capacity for high-demand weapons. However, the time period between identification of a production requirement and delivery of completed weapons can be from two to five years. During this interval, funds are programmed into an upcoming Air Force budget, funds are appropriated, a production contract is awarded, production commences, and delivery is completed. This lengthy process limits the industrial base's ability to respond rapidly to major changes in production requirements. Investments are being made in the current industrial base to be able to meet projected munitions requirements over the next few years. However, this capacity can only be preserved if stable base funding can be maintained.

QUESTIONS SUBMITTED BY SENATOR MAZIE HIRONO

HIRING FREEZE

13. Senator HIRONO. Vice Admiral Moore, an exemption to the Administration's civilian hiring freeze was granted for various positions including certain positions at our nation's public shipyards? Can you provide an update on how the waiver process is working and do you see any residual effects of the hiring freeze which could impact your ability to continue building a balanced and skilled workforce?

VADM MOORE. The hiring freeze waiver process has been working well for the four Naval Shipyards. The Naval Shipyards have submitted and been approved for more than 7,500 waivers with no denials. There was an initial reduction in onboarding of new employees as the Department of Defense and Navy built and promulgated their hiring freeze waiver processes and procedures, but at this point any necessary timelines for waiver approvals have been incorporated into the hiring process, job offers are moving forward, and the 4 Naval Shipyards are back to regular onboarding of new employees.

IMPORTANCE OF MILCON TO READINESS

14. Senator HIRONO. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, each of the Services has requested additional MILCON funding in the Supplemental Budget Request submitted by the President. Is the current level of MILCON impacting the Services' ability build the required capacity to increase readiness; and if so, what MILCON projects are most important to increase readiness?

LTG WYCHE. Current MILCON Army (MCA) funding is not adequate for meeting the modernization needs of the Army's Organic Industrial Base. Since Sequestration, budgets have forced the Army to accept risk in many areas. In terms of MILCON, the past several POM cycles has seen historic lows in MCA funding. The Army Materiel Command has been successful in mitigating risk in some cases through the use of major renovations using R&M funding. But since fiscal year

2010, AMC has averaged just \$70 million per year in projects. In order to modernize the capacities and capabilities for the AMC, the Command estimates needing \$300 million in MCA investment per year.

VADM GROSSE. The current level of MILCON funding is limiting the ability of the Fleet Readiness Centers (FRCs) to increase capability/capacity to the levels necessary to support customer demands, new technologies and capabilities of emerging fleet aircraft. FRCs has the F/A-18 Avionics Repair Facility Replacement, Naval Air Station (NAS) Lemoore, CA and the F-35B Vertical Lift Fan Test Facility, Marine Corps Air Station (MCAS) Cherry Point, NC in the President's Budget submission for funding in fiscal year 2018.

VADM MOORE. The following Naval Shipyard MILCON projects are planned for fiscal year 2017: Activity Project Number Project Description Est. Cost (\$000) Portsmouth NSY 371 Nuclear Facilities Utilities Improvements \$30,119 Puget Sound NSY & IMF 400 Submarine Refit Maintenance Support Facility (Phase 2) \$21,476 Puget Sound NSY & IMF 438 Nuclear Environmental Monitoring Facility \$6,704 Per title 10 U.S.C. 2476, the Naval Shipyards are funded to meet the statutory 6 percent minimum investment for the Navy's maintenance depots. While this is adequate to maintain existing mission-essential infrastructure functionality, it does not provide appreciable productivity improvements across all four Naval Shipyards. For fiscal year 2018 the Navy has identified approximately \$134 million in MILCON requirements to positively impact naval shipyard readiness, listed in priority order below: Activity Project Number Project Description Est. Cost (\$000) Portsmouth NSY 293 Paint, Blast & Rubber Facility Consolidation \$61,692 Norfolk NSY 257 CVN and SSN Ship Repair Training Facility \$72,990.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. See chart below:

The current level of Military Construction (MILCON) funding forces Air Force Sustainment Center (AFSC) leaders to fund new facilities in support of emerging/new weapon systems before replacing existing mission facilities. Facilities with unsafe / unusable work areas or facilities that do not meet basic readiness requirements are often unfunded, leaving commanders to find Maintenance and Repair (M&R) funds to keep facilities usable. Funding in this manner increases readiness as it relates to new mission, but leaves commanders struggling to sustain or increase readiness of existing mission requirements.

This bias is best represented by MILCON funding related to AFSC's Air Logistics Complexes (ALCs). Since fiscal year (FY) 2012, approximately \$212 million in funding has been approved for new mission depot MILCONs. In contrast, there have been zero current mission depot MILCONs funded in the same timeframe. The Air Base Wings (ABWs) have not fared much better. Unless a facility is beyond repair (condemned) or directed by AF Leadership, funding for existing mission requirement has not been approved.

Annually, AFSC submits approximately 60 combined new and existing mission MILCON requirements. Most of these requirements have been submitted multiple years but remain unfunded. Mission accomplishment and readiness is directly tied to each of these requirements. In many cases, facilities have declined to non-repairable conditions or workload has surpassed the facility's capability to support it. For example, Ogden Air Logistics Complex (OO-ALC) has submitted a requirement for a Secure Software Facility since fiscal year 2012. This is the first of five (5) phases based strictly on known software workload requirements and has an expected payback of less than 15 months. Because this \$29 million MILCON has not been funded, OO-ALC has been forced to lease temporary facilities and contract workload at an annual cost almost twice that of the MILCON requirement to meet mission needs/readiness!

AFSC submits its list of MILCON requirements for consideration at AFMC each year. In the latest MILCON submission for fiscal year 2019, 61 projects were prioritized and submitted for funding. These requirements support all mission/readiness needs across AFSC's three ALCs and ABWs. AFSC's top 15 Existing Mission MILCON requirements for fiscal year 2019 are shown in the following table:

Fiscal Year 2019 Existing Mission MILCON Requirements

| Priority | | | (\$ in millions) |
|----------|--------|---|------------------|
| 1 | Robins | Commercial Truck Gate | 9,800 |
| 2 | Tinker | Commercial Vehicle Visitor Control Facility | 13,400 |
| 3 | Robins | Aircraft Fire Bottle Maint Fac | 9,800 |
| 4 | Robins | Control Tower/Base Ops Fac | 13,200 |
| 5 | Hill | Consolidated Transportation Facility | 20,600 |
| 6 | Hill | F-16 Emergency Power Unit Overhaul Facility | 19,400 |
| 7 | Robins | Depot Quality Control Lab | 17,700 |
| 8 | Hill | Install New PCC Apron (Hot Pad 8) | 9,200 |
| 9 | Tinker | ADAL Depot Aircraft Maint Fuel Dock | 8,000 |
| 10 | Hill | Upgrade Industrial Waste Treatment Plant | 7,900 |
| 11 | Tinker | Upgrade Building 3001 Infrastructure P4 | 21,000 |
| 12 | Tinker | Visitor's Quarters | 23,000 |
| 13 | Tinker | Natural Gas Main Extension | 3,950 |
| 14 | Hill | Secure Core Software Facility | 28,300 |
| 15 | Robins | Add to Software Support Fac Bldg 229 | 7,000 |

Note: Add/Alter (ADAL), Portland Cement Concrete (PCC)

BOTTLENECKS IN THE DEFENSE INDUSTRIAL BASE

15. Senator HIRONO. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, the industrial base plays an important role in research and development as well as design, production, delivery, and maintenance of weapon systems, vehicles, airplanes, and subsystems for the U.S. military. What types of bottlenecks exist in the defense industrial base that will make it difficult to increase readiness?

LTG WYCHE. The primary bottlenecks continue to be the late release of funding to the Organic Industrial Base customers. This results in them providing funds to the Organic Industrial Base activities later in the fiscal year resulting in decreased throughput and increased carryover. Carryover should be redefined to remove procurement (3-year money) and other Department of Defense from annual carryover rules. Decreased supply availability and backorders will drive the Army to continue to have excess inventory (serviceable and unserviceable) and will result in our inability to purchase and store critical repair parts required to support the joint warfighter. Also, it has been increasingly difficult to maintain a steady skilled workforce for the Organic Industrial Base facilities. If Organic Industrial Base sites were granted permanent direct hiring authority for justifiable requirements, the hiring of additional skills would alleviate issues in maintaining the human skills sets of core capabilities. The restricted ability to realign resources from lesser priority programs will impact the repair schedule and the inability to meet mission timelines. For example, the Opposing Forces (OPFOR) equipment at our Combat Training Centers has been neglected basically since before the war began in 2003. Their primary vehicles, the Opposing Force Surrogate Vehicle, are outdated and are a readiness challenge and do not provide our forces a realistic combat training scenario. In order to improve readiness and support the increased training intensity the Opposing Force Surrogate Vehicle must be repaired. This cannot be done under the continued budget constraints levels. The Army has also determined that there is a valid need for additional Brigade Combat Teams. The first brigade combat team to be built is the 15th Armored Brigade Combat Team and this is generating a requirement to send Paladins (howitzers) and Field Artillery Ammunition Support Vehicle (ammunition supply vehicles) to Anniston Army Depot for maintenance. It is imperative

that the Army rebuilds its combat capability to ensure it can meet the challenges arising around the globe.

VADM GROSKLAGS. Increasing readiness is not necessarily a result of industrial base bottlenecks but rather a function of a stable design, manufacturing, and operation & sustainment programs and budgets. With resource stability, a trained/high performance work-force, continuity of operations, and prudent investments in manufacturing and depot tooling/robotics, the defense industrial base can sustain, and if necessary, surge to meet current and projected future warfighter readiness demands.

VADM MOORE. Sustained readiness is a function of stable design, manufacturing, and operation & sustainment programs and budgets. With resource stability, a trained/high performance work-force, continuity of operations and prudent investments in manufacturing and depot tooling/robotics, the defense industrial base can sustain, and if necessary, surge to meet current and projected future warfighter readiness demands. The “bottlenecks,” or, more accurately, limiting factors, to the defense industrial base’s ability to increase readiness, especially in the short term, are the size of our highly skilled, public and private sector repair workforce, “floor space” to perform the work (e.g. dry docks for ships), and the vendor base for repair parts. All of these factors require years of lead time, and significant advanced funding, to increase capacity. The funding uncertainty of continuing resolutions every year exacerbates the effects of those limiting factors, resulting in reduced private sector capacity.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. Unpredictability caused by continuing resolutions and changes in mission inhibits industrial interest in supporting DOD, thus creating a bottleneck of total defense industrial capacity. Unstable funding for sustainment and a lack of proper enterprise weapon systems planning creates bottlenecks in material shortages/obsolescence issues, as well as provisioning and data rights, which in turn have significant impacts on future planning and potentially readiness. In the organic industrial base, AFSC has a robust Diminishing Manufacturing Sources Material Shortages (DMSMS) management plan for items highly likely to face obsolescence issues. Pricing is risky on these items, creating huge spikes in material costs within the production lead time, which impact profits on certain firm fixed price contracts, causing some disinterest in getting involved in supporting the government requirements. In transitioning from acquisition to sustainment with new weapon systems, initial provisioning and government ownership of technical data are limiting factors and a recurring bottleneck to organic sustainment. We can’t afford to continue managing data rights tactically. Air Force doctrine calls for disparate parts of different functions to be brought together intelligently to achieve unity of effort and unity of command in order to obtain the best effects. The government wants to “own” the technical baseline by working to solve the technical data problem at the strategic level. Within our laws, regulations, and policies, the disparity of understanding exists in the industrial base as to what rights we should or should not have or how to go about enforcing our rights to obtain the correct data packages from our industrial partners. Creating stable funding for the future and having better sustainment and acquisition planning early in the lifecycle of weapons systems will help eliminate bottlenecks and keep our force ready.

GROUND EQUIPMENT CHALLENGES

16. Senator HIRONO. LTG Wyche and LtGen Dana, are there any specific ground equipment readiness challenges that are impacted by the defense industrial base?

LTG WYCHE. Fiscal uncertainty and lack of a demand signal that drove us to this poor supply availability makes it difficult to optimize our processes; resulting in higher operating costs, production delays and increased carryover. The lack of a demand signal over an extended period of time, extended contract lead times for critical items, and obsolescence all impact ground equipment readiness. We believe we are largely past the major lead time hurdles and we have our buying activities focused on further reducing lead-times. The Defense Logistics Agency is pursuing a number of system wide omnibus contracts with our Original Equipment Manufacturers to reduce lead-times and to aid with replacement of obsolete parts.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

17. Senator HIRONO. LTG Wyche and LtGen Dana, what is the operational tempo at your installation depots and do you anticipate a backlog in Depot level maintenance for any specific reason?

LTG WYCHE. The OIB is currently work-loaded to meet requirements and positioned to surge in support of Contingency Operations. Backlog is workload that has not yet been funded and the Army does have a number of unfunded hardware and software requirements. Without proper depot maintenance funding, the Army will not be able to perform aviation rebuilds or receive the required missile recertification and upgrades to system software that are required and critical to ensure weapon systems communicate on the battlefield. Furthermore, the Army has other depot maintenance funding requirements generated by unforeseen/unplanned missions. The restricted ability to realign resources from lesser priority programs will impact the repair schedule and the inability to meet mission timelines.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

NATIONAL GUARD'S ROLE IN READINESS

18. Senator HIRONO. Lieutenant General Levy, what role can the Air National Guard play in increasing readiness?

Lt. Gen. LEVY. The critical role of the ANG towards our nation's readiness is well known and acknowledged. Their transition from a strategic reserve to an operational force that fights seamlessly with the joint force is an enabling factor in our nation's capabilities. There is more to be done within the Total Force Association (TFA) arena in regards to the AFSC's internal readiness and its ability to strengthen the readiness of the warfighter. The AFSC already benefits from a limited but highly successful partnering with the ANG. The 126th Supply Chain Operations Squadron (ANG) at Scott AFB, IL and the 192d Supply Chain Operations Flight (ANG) at Langley AFB, VA, provide integral and critical support to the AFSC's 635th Supply Chain Operations Wing, maintaining the same standards of operational readiness and cross-component operational capabilities for daily and surge operations as their Active Duty counterparts. This same kind of relationship could be explored for our Air Logistics Complexes (ALC). For instance, establishing associations with ANG Squadrons at each Depot could leverage the experience and capability of ANG maintainers in order to provide responsive blue-suit wartime surge capability, help grow and preserve our critical aircraft maintenance career fields, (a true core-competency of the ANG), and most importantly, augment our critical Expeditionary Maintenance (EDMX) and Aircraft Battle Damage Repair (ABDR) requirements as well as other areas. While not traditional unit-equipped squadrons, they could be built upon wartime task-able Unit Type Codes (UTCs) fulfilling requirements of a gaining Major Command (MAJCOM), necessary for legitimate Air Reserve Command (ARC) mission establishment. Such a concept, of course, is reliant on availability of ANG manpower and their willingness to place it accordingly. The AFSC stands ready to explore this readiness enhancing potential Total Force partnership with the ANG. In addition, ANG units also have exceptional field level capabilities that are being explored to augment AFMC's existing expertise for surge requirements especially related to legacy aircraft parts and structural repairs.

19. Senator HIRONO. Lieutenant General Wyche, what is your opinion of the Guard's role in Army readiness?

LTG WYCHE. The National Guard plays a vital and integral role in total Army Readiness with 78 percent of Army Sustainment Force Structure residing the Reserve Component and much of that Force Structure is at the National Guard states and territory level. The National Guard has fully participated in contingency operations for 15 years and is currently ramping up additional Brigade Combat Teams to make them available for the Chief of Staff of the Army utilization as needed around the globe. There are challenges to raise and maintain the Readiness of additional combat forces from the National Guard. The Total Army Enterprise is working together to ensure those forces are ready because National Guard Readiness is Army Readiness.

INNOVATION IN READINESS

20. Senator HIRONO. LTG Wyche, VADM Grosklags, VADM Moore, LtGen Dana, and Lt. Gen. Levy, what steps have each of you taken to work with industry leaders to bring advanced technologies and manufacturing techniques back into the Department and integrated those concepts into the Department of Defense's industrial base?

LTG WYCHE. Both the Private Industry and the Organic Industrial Base are equally critical to providing readiness to the Army and our partners within the other services. Public-Private-Partnerships improve capabilities and performance through cooperative agreements. Through these 200 active partnerships, industry

can take advantage of the critical capabilities and skill sets developed by the Army's Organic Industrial Base and the Organic Industrial Base can take advantage of the advanced technologies and manufacturing techniques offered by industry. Private Industry continues to play a very significant role providing equipment for our great Army. Our Original Equipment Manufacturers produced the Abrams Tank, Bradley Fighting Vehicle, AH-64 Apache Helicopter, UH-60 Blackhawk Helicopter and more recently the Mine Resistance Ambush Protected and Route Clearance Vehicles. The Organic Industrial Base is thoroughly integrated with private industry and has been properly equipped to sustain each system previously mentioned. The Headquarters, Army Materiel Command and its LCMCs regularly conduct Industry Forums with the private industry to discuss warfighter and industry needs, areas of concern, and collaborate on future initiatives important to sustaining the joint warfighter.

VADM GROSCLAGS. Efforts to modernize Navy depots and the organic industrial base are essential to improve readiness. Advanced Digital Manufacturing (ADM) technologies like 3D printing can accelerate how maintenance, repair and overhaul (MRO) activities sustain Navy and Marine Corps aircraft. Digital manufacturing technologies can shorten the "design to production cycle," optimize new designs and enable cost-effective, on-demand manufacture of components or those for which no parts are available. In the last two years Naval Air Systems Command (NAVAIR) has been developing processes to print 3D metal "flight-critical" components that meet required design and safety criteria. NAVAIR flew its first metal flight critical component, a titanium engine nacelle link and attachment on the MV-22B in July of 2016. NAVAIR is scaling up integration of digital manufacturing with Navy organic depots and industry counterparts. Integration includes investments in standards, qualification and certification approaches for repairs, tooling, support equipment, and end use components. For example, in March 2017 NAVAIR approved and put into the U.S. Government supply system a 3D printable H-1 Helicopter Helmet Visor Clip. The original part, a small clip that supports the helmet visor, was a \$200 item that had a month long procurement lead time. It can now be made "on-demand" for a recurring cost of \$0.75 per unit. The standards being developed are not unique to NAVAIR. NAVAIR is working across the Department to align and leverage the work that the Naval Sea Systems Command, U.S. Marine Corp, U.S. Air Force, and U.S. Army are doing to employ 3D printing and other ADM technologies. Additionally, NAVAIR has reached out to original equipment manufacturers and commercial vendors to understand how they are employing 3D/ADM in similar applications. The standards in development intended to enable use of this technology across the Department of Defense industrial base. ADM technology does not stand alone. It requires an investment in digital infrastructure, digital data, and cyber security to full leverage. Modernizing our depots and organic industrial base must include the investments in improving, managing and securing our digital data.

VADM MOORE. Efforts to modernize Navy shipbuilding and the organic industrial base are essential to improve readiness and the Navy has worked with industry to integrate advanced technologies and manufacturing techniques into the industrial base. The National Shipbuilding Research Program (NSRP), managed through the Naval Sea Systems Command (NAVSEA), provides a collaborative framework for shipbuilders and maintainers to share best practices and is designed to reduce the total ownership costs in both the Government and private sectors. NSRP participants include the five NAVSEA-affiliated Program Executive Offices, the United States Coast Guard, and 11 major private shipbuilding firms. The program supports soliciting, selecting and executing shipbuilding, ship repair and maintenance, and ship modernization research and development projects. In addition, NSRP serves a critical role by providing a public forum for industry-wide networking, technology transfer and discussion of current Navy and industry areas of interest. The transfer of the technologies and tools NSRP project teams are developing for both the shipbuilding industry and the Navy is at the core of the program's mission. Another important function NSRP serves is fostering strong relationships with industry and Navy associations and organizations, including the American Society of Naval Engineers, Marine Machinery Association, Navy League, Naval Submarine League, ShipTech, and Society of Navy Architects and Marine Engineers. In addition to NSRP, NAVSEA uses its Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) Programs to fund innovative small businesses to develop technology, processes, and products to meet critical warfighter needs, including maintenance reductions and improvements, total ownership costs, and obsolescence concerns. The NAVSEA SBIR/STTR Program serves as an on-ramp for the small business industrial base to participate in NAVSEA technology development, and NAVSEA has an excellent record of transitioning SBIR/STTR Phase I and Phase II technology development efforts to SBIR Phase III and into DOD acquisition

programs. The NAVSEA SBIR/STTR Program conducts outreach events that engage small businesses and associated organizations, universities and laboratories, and large prime contractors to expand the country's industrial base. Starting in August 2015, NAVSEA has hosted a Small Business Industry Day at its headquarters at the Washington Navy Yard to increase small business participation and interaction between the command and underserved companies. NAVSEA is hosting the 2017 Small Business Industry Day on August 8.

LtGen Dana did not respond in time for printing. When received, answer will be retained in committee files.

Lt. Gen. LEVY. The Air Force Sustainment Center (AFSC) continually pursues advanced technologies and manufacturing techniques to incorporate into the sustainment environment by partnering with industry and academia. There is a structured pipeline through which promising technologies are developed, manufacturing readiness is improved, and mature systems are incorporated into the production environment. The Technology Development and Insertion Process (TDIP) team collects and prioritizes technology needs from AFSC organizations. The AFSC TDIP portfolio has over 100 ongoing efforts between industry and the technology needing organization. These projects vary greatly from maximizing efficiency, increasing process controls, increasing safety, developing smarter software, lowering energy or waste of our process and more. Limited key examples include: Maturation of Advanced Manufacturing for Low-cost Sustainment (MAMLS): AFSC is a member of the Sustainment Advisory Committee for this program executed through the America Makes cooperative agreement. Structured as a public-private partnership with member organizations from industry, academia, government, and non-government agencies, America Makes is the national accelerator for additive manufacturing (AM) and 3D printing (3DP) and is the nation's leading and collaborative partner in AM and 3DP technology research, discovery, creation, and innovation to increase our nation's global manufacturing competitiveness. Laser Depaint: Exercising commercial off the shelf robotics and lasers in the new application of aerospace coatings (paint) removal. This multi-year effort is close to fully operational on F-16s, with follow-on work and approval for A-10s, missile transport trailers, and munition trailers. Additionally, handheld lasers developed through this effort are in use in the field and will be further qualified for depot operations. Additive Manufacturing: Polymer 3DP capabilities are currently in use creating tooling, dies, molds, fixtures, drill templates, shop aids, and prototype parts. Efforts are on-going to bring metal 3DP capabilities on-line, both organically and through industry partnering. Immediate implications are to the agility and speed with which parts and support equipment can be produced to drastically decrease production time. Robotics: Focused on four major goals—1) remove personnel from hazardous environments, 2) perform tasks that personnel cannot do, 3) improve effectiveness/efficiency/quality, and 4) replace custom-built, one-of-a-kind, proprietary systems. Examples currently implemented include: 35,000 psi water blasting, High Velocity Oxygen Fuel (HVOF), Cold Spray, C-130 Prop grinding, Flash-Jet paint removal, Shot Peening, Plastic Media Blasting, and Low Plasticity Burnishing (LPB). Advanced Metal Finishing Facility (AMFF): Utilizes remotely operated computer controlled technology to conduct over twenty metal finishing operations. These enhancements include production preparation areas that remove operators from the processing environment; resulting in a 95 percent reduction in hazardous chemical exposure inherent to electroplating operations. Smart Manufacturing: Suite of sensors monitoring production machinery parameters such as pressure, flow, lubricating oil degradation, and vibration parameters enables Conditions Based Maintenance. Hailed as a "success story" by professional organizations, this program demonstrated the potential benefits of "smart" manufacturing technologies. Additional Advanced Technologies Being Pursued: Reconfigurable Machining Centers, Voice Directed Inspection System, Confined Space Monitoring System, Energy Conservation Projects, Networked Sensor Systems, Honeycomb Sandwich Structure Inspection, Automatic Water Stripping, Advanced Corrosion Resistant Coatings, High Precision X-Ray Plating Technologies/Chromium Reduction, In-Situ Coating Property Sensor, Plume Opt Powder Injection, 3D Printed Masking for Plasma Spray, Sonic Infrared Crack Detection, Conforming Anodes and Masking, Strip Solution Optimization, Advance Machining Process for Shrouded Turbine Blades, Counterfeit Electronics Detection, Exoskeleton Suit, Advanced Nondestructive Inspection, Laser Scanning, and Predictive Maintenance systems.

SKILLED LABOR ON SHIPYARDS

21. Senator HIRONO. Vice Admiral Moore, reports show that skilled welders and technically skilled machinist can make upwards of \$300,000 in the private sector.

Are you facing a challenge in trying to recruit and retain these highly skilled team members in the wake of the outstanding private sector opportunities which are available to them? Besides the opportunity to serve our country and work on vital national assets, what are you able to offer these highly qualified and sought after individuals?

VADM MOORE. Yes, it is an issue in terms of technically skilled mechanics. For example, in the Tidewater area of Virginia, Norfolk Naval Shipyard (NNSY) has lost skilled mechanics to the private sector, which offers up to about \$34.00 an hour for highly skilled welders versus about \$27.00 an hour for a top-step, nuclear pipe welder at NNSY. Naval Shipyards will be submitting a request for tiered incentives (i.e., higher pay levels, special-act awards, incentives, etc.) based on critical skills and advanced qualifications as a retention tool and recognition of skill mastery by the end of the calendar year. Additionally, NNSY has submitted requests for approval of Direct Hire Authority for targeted skills (i.e., experienced/journeyman level machinists, welders, et al).

ROLE OF PRIVATE SHIPYARDS

22. Senator HIRONO. Vice Admiral Moore, according to Vice Chief of Naval Operations Admiral Bill Moran, the attack submarine *Boise* has been sitting pier side for about 47 months for a maintenance cycle that usually takes about 24 months to complete. This has led the Navy to solicit bids from private shipyards for this maintenance cycle. How can we capitalize on the private sector to help get maintenance back on schedule?

VADM MOORE. For clarification, Vice Chief of Naval Operations, Admiral Bill Moran's comment was referring to the USS *Albany* (SSN 753) Engineered Overhaul (EOH). USS *Albany's* EOH was planned to complete in 28.3 months, but is now projected to complete in 47.3 months. USS *Boise's* (SSN 764) certification for Unrestricted Operations (URO) expired in June 2016 and she has been moored pier side since then because Norfolk Naval Shipyard, and the other naval shipyards, lacked the capacity to perform the EOH. There are two main avenues the Navy can take to capitalize on the private sector to help get maintenance back on schedule. First, the Navy can contract out entire availabilities to the two nuclear qualified private shipyards, General Dynamics-Electric Boat (GDEB) and Huntington Ingalls Industries-Newport News Shipbuilding (HII-NNS), when temporary peaks in workload exceed the naval shipyards' capacity. The Navy has done this in the past and is in the process of conducting a limited competition between GDEB and HII-NNS for USS *Boise's* EOH. The Navy has recently contracted to the private sector to conduct the following submarine depot maintenance availabilities: USS *Montpelier* (SSN 765) fiscal year 2016 Interim Dry Docking, awarded to GDEB in May 2015; USS *Columbus* (SSN 762) fiscal year 2017 EOH, awarded to HII-NNS in August 2015; and USS *Helena* (SSN 725) fiscal year 2018 Drydock Selected Restricted Availability (DSRA), in process for award to HII-NNS, expected July 2017. The private sector capacity to do this work is limited by their dry dock space and competing workload from the Navy's CVN and submarine new construction programs. While more flexible than the government, the private shipyards face similar challenges as the naval shipyards in rapidly growing their capacity because of the time required to recruit and train skilled workers. Second, the Navy can contract out some of the work on availabilities conducted in the naval shipyards to the private sector. This is an approach the Navy is starting to use more to address the workload-to-workforce mismatch over the next few years in parallel with hiring. It opens up the potential vendor base beyond the two nuclear qualified shipbuilders and can help address specific skill shortages in the naval shipyards that would otherwise drive delays. However, this approach also has drawbacks. The work is more costly than comparable work performed by the naval shipyards' organic workforce, and requires additional government resources for contract oversight and support services.

23. Senator HIRONO. Vice Admiral Moore, what role does the private-public partnership play in ship maintenance and the Navy's ability to effectively plan and execute maintenance on ships?

VADM MOORE. Public-private partnerships play a critical role in planning and executing ship maintenance. Naval Shipyards, NAVSEA introduced the concept of One Shipyard in 2001, describing an industrial base workload and resource enterprise set up to achieve the most efficient ship maintenance for the fleet under a "surge, sustain and reconstitute" operational construct. One Shipyard focused on schedule and quality through standardized processes, resource sharing among public shipyards, and partnering with private shipyards. Other vital elements included a corporate approach to material support and the resolution of critical skill shortages.

The concept has matured, and today the Naval Shipyards and private shipyards effectively partner to routinely share both work and resources to efficiently deliver fleet maintenance. Four Naval Shipyards collaborate with one another and with private industrial organizations to improve industrial processes, implement best practices and to obtain new technology for industrial work. Further collaboration occurs through Carrier Team One, Submarine Team One, National Shipbuilding Research Program, Commercial Technology for Maintenance Activities, such as the National Centers for Manufacturing Sciences program, NAVSEA Warfare Centers, Manufacturing Technology, Repair Technology, and implementation of solutions from private industry trade shows.

24. Senator HIRONO. Vice Admiral Moore, has the current means and methods of surface ship maintenance execution in Pearl Harbor supported the Fleet's requirements for cost, schedule and quality?

VADM MOORE. Yes. Surface ship maintenance is moving in the right direction when it comes to both schedule and cost performance. The quality of the work meets fleet requirements. The Navy is implementing contracting, planning and execution processes improvements nationwide and we are seeing positive results in Pearl Harbor. On-time delivery performance is on par with our four major homeport areas. Historically, cost performance at Pearl Harbor as measured by growth and new work has been higher than CONUS port averages, but has shown significant improvement with above average performance over the last three years as evidenced by a cost growth reduction of 33 percent.

25. Senator HIRONO. Vice Admiral Moore, has the current means and methods of surface ship maintenance execution in Pearl Harbor provided stability and predictability to the Pearl Harbor industrial base?

VADM MOORE. Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNSY & IMF) and the Hawaii Regional Maintenance Center (HRMC) work closely with Commander, Pacific Fleet (COMPACFLT), Commander Naval Surface Forces, Pacific (CNSF), Commander, Naval Sea Systems Command (NAVSEA), and Commander, Navy Regional Maintenance Center (CNRMC) representatives, on the Fleet Availability Scheduling Team (FAST) to schedule surface ship maintenance. The FAST projects the ship operating schedules and estimates the future windows for repair availabilities according to the Optimized-Fleet Response Plan (OFRP). The team adjusts the repair periods for individual ships to ensure that the workload for each port is executable. It also balances the need to meet O-FRP requirements with the desire to level the workload for the port as much as possible and, thereby, provide stability for the industrial base in each port. The FAST product is a workload schedule that is provided to the Pearl Harbor industrial base for its planning purposes.

26. Senator HIRONO. Vice Admiral Moore, does the Navy view industrial base predictability and stability as integral to the maintenance of surface ships at Pearl Harbor?

VADM MOORE. Industrial base stability and workload predictability are critical to maintaining our ships affordably and in a quality manner at all of our industrial ports, including Pearl Harbor. Stable and accurate workload forecasts are key to fostering an environment of well-planned, well-managed, and well-executed maintenance availabilities. Maintaining stable workloads also allows for the necessary number of skilled trade workers to be hired, trained, and available as needed to support the projected workload. Key to ensuring a stable workload is maintaining sufficient funding each year to meet the fleet's maintenance requirements.

LONG-TERM TDY REQUIREMENTS.

27. Senator HIRONO. Vice Admiral Moore, in January 2016 your predecessor Admiral Hilarides wrote a letter to the per diem committee on behalf of the Navy requesting an immediate waiver for naval shipyard civilian workers from the change in long term TDY per diem policies. Do you agree with the waiver request? Some relief was provided by the most recent NDAA. Can you provide information on how this waiver process is working? Are waivers being processed in a timely and efficient manner to support these long term assignments?

VADM MOORE. Yes, NAVSEA agrees with the waiver request previously submitted by VADM Hilarides. Revisions to the Joint Travel Regulations by the Per Diem, Travel, and Transportation Allowance Committee have been completed, including the most recent changes authorized in NDAA 2017. With the Acting Secretary of the Navy delegating waiver approval authority to the 3-star Flag Officer

or civilian SES equivalent, NAVSEA updated its travel instruction accordingly. The Commander, Pacific Fleet and Commander, United States Fleet Forces Command are in the process of issuing instructions to their cognizant Naval Shipyards for waiver requests for full rate per diem. NAVSEA has not received any waiver requests to day for personnel assigned to the NAVSEA budget office, but is committed to processing any future requests in a timely manner.

28. Senator HIRONO. Vice Admiral Moore, how has the implementation of this policy change impacted the readiness of our fleet, recruiting and retention at our shipyards and the morale of these important members of the Navy team?

VADM MOORE. Activity Project Number Project Description Est. Cost (\$000)
 Portsmouth NSY 371 Nuclear Facilities Utilities Improvements \$30,119 Puget Sound NSY & IMF 400 Submarine Refit Maintenance Support Facility (Phase 2) \$21,476 Puget Sound NSY & IMF 438 Nuclear Environmental Monitoring Facility \$6,704 Per title 10 U.S.C. 2476, the Naval Shipyards are funded to meet the statutory 6 percent minimum investment for the Navy's maintenance depots. While this is adequate to maintain existing mission-essential infrastructure functionality, it does not provide appreciable productivity improvements across all four Naval Shipyards. For fiscal year 2018 the Navy has identified approximately \$134 million in MILCON requirements to positively impact naval shipyard readiness, listed in priority order below: Activity Project Number Project Description Est. Cost (\$000)
 Portsmouth NSY 293 Paint, Blast & Rubber Facility Consolidation \$61,692 Norfolk NSY 257 CVN and SSN Ship Repair Training Facility \$72,990.

29. Senator HIRONO. Vice Admiral Moore, while ensuring that every taxpayer dollar is used wisely and efficiently should always be a top priority for government decision makers, can you talk about any unintended consequences which have resulted as this policy change has been implemented? This could be related to additional tasking to staff to work on waivers, processing of travel claims, availability of willing experts to go work in places over the long term, the cost of using more people to fill the same long term assignment, morale etc.

VADM MOORE. Whenever a Department of the Navy civilian is on travel for temporary duty (TDY) that extends beyond 30 days, the reduced per diem rules apply. The employee will receive reduced per diem for Meals and Incidental Expenses (M&IE) at the rate of 75 percent of locality per diem rates for the locality of the TDY with a duration of 31–180 days and 55 percent for TDY of 181 days or more. Similarly, the employee will receive reduced per diem for lodging of 75 percent of the locality rates for TDY of 31–180 days and 55 percent for TDY of 181 days or more. These reduced per diem rates for long-term travel for temporary duty (TDY) extending beyond 30 days have resulted in unintended consequences including required additional administrative work to process travel orders and travel claims, and to process waivers. It has also resulted in reduced availability of subject matter experts to engage in long-term TDY because of the additional cost that must be borne by the traveler on top of being away from home for extended periods of time. In the face of a lack of volunteers for long-term TDY, some union contracts require the Government to first direct junior personnel to go on the long term travel before directing senior subject matter experts which can result in the need for additional personnel to fulfill the assignment to ensure that the work can be accomplished. All of these unintended consequences increase the cost of the long-term TDY to the Government and reduce workforce morale. Specifically with respect to the additional administrative cost of processing waivers, once reduced per diem applies, there are at least 4 waiver processes that the employee could need that add to the administrative burden of processing travel orders and travel claims: (1) If TDY is projected to exceed 180 days, a waiver is required to permit the TDY to extend beyond 180 days; (2) If the employee cannot find lodging for the amount of the reduced per diem at the locality to which the employee will travel, he or she must ask the government travel service provider (CWTSatoTravel) for assistance. If CWTSatoTravel cannot find lodging for the employee at the reduced rate, the employee must seek a waiver of the reduced rate for lodging to permit reimbursement of actual expenses for lodging for up to the amount of the locality per diem which ordinarily requires the employee to provide receipts for actual expenses; (3) The employee may request a waiver of the reduced per diem for M&IE at the locality to permit the employee to be reimbursed for actual expenses up to the amount of the locality per diem rate which ordinarily requires the employee to provide receipts for actual expenses; and, (4) Under the Fiscal Year 2017 National Defense Authorization Act, the employee may request their approving three-star flag officer/general officer or above to waive the need for the employee to keep and submit actual receipts. Specifically with respect to the lack of volunteers for long-term TDY, before implementation of the reduced

per-diem requirements, the Naval Shipyards never needed to issue a directed travel letter to their employees to cover long-term TDY. With the advent of the reduced per-diem rules, Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF) has discovered that issuing such letters is now a common occurrence. Based on a recent survey of primary activities with the need to use long-term TDY, mandatory assignment of employees (directed travel) to TDY assignments from PSNS & IMF has climbed from 0 percent through 5 percent to as high as 39 percent of those workers being asked to travel. Because of the lower per-diem allowances, employees have expressed significant concerns that they risk paying a portion of expenses out of pocket and, therefore, no longer volunteer for, or decline, the long-term TDY assignments. The result is that ordered/directed long-term TDY is now common and negatively impacts ship maintenance efficiency and employee morale and performance. Additionally, under some union contracts, ordered travel may impose reverse seniority rules whereby less experienced junior employees are sent to perform highly technical work, introducing increased risk to quality and to scheduled completion dates. This poses a significant concern as employees selected for temporary duty assignments must have the qualification and expertise required for successful execution of maintenance work and is compensated for by sending additional personnel to accomplish the work. Having a highly qualified team of skilled experts committed to maintaining Navy readiness is critical to mission success. The new per diem rules contained in the fiscal year 2017 NDAA will help alleviate some of these challenges.

