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**A CASE FOR REFORM: IMPROVING
DOD'S ABILITY TO RESPOND TO THE
PACE OF TECHNOLOGICAL CHANGE**

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ONE HUNDRED FOURTEENTH CONGRESS

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ONE HUNDRED FOURTEENTH CONGRESS

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A CASE FOR REFORM: IMPROVING DOD'S ABILITY TO RESPOND TO THE PACE OF TECHNOLOGICAL CHANGE

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, Wednesday, January 28, 2015.

The committee met, pursuant to call, at 9:33 a.m., in Room 2118, Rayburn House Office Building, Hon. William M. "Mac" Thornberry (chairman of the committee) presiding.

The CHAIRMAN. The committee will come to order. Let me welcome all the members, witnesses and guests to the first formal hearing of this committee in the 114th Congress.

Before we turn to our witnesses and the topic of the day, Mr. Smith and I want to take a brief moment to welcome and to introduce the new members of the committee. The brevity of our introductions is no indication of the talent that the new members bring. It is simply a function of our time limitations. We are going to have votes here in a little bit, but I do want to take a moment to welcome our new folks.

On the Republican side, there are six new members, starting with Sam Graves, who represents the Missouri's Sixth District and is joining us after completing his term as the chairman of the House Small Business Committee. He has worked with us on those issues before and will be a huge asset as we continue to work through a lot of the issues that we are going to be talking about today.

Next is Ryan Zinke, who represents Montana's At-Large District, a 23-year-old veteran of the Navy and former Navy SEAL [Sea, Air, Land] commander with combat tours in Iraq. So he brings lots of experience, but I am told his most important role is that of a proud Navy dad, which we all understand.

Elise Stefanik is representing New York's 21st District and Fort Drum, home of the 10th Mountain Division. The youngest woman ever elected to the House, she also knows her way around Washington, having served in the Bush White House and at the Foreign Policy Institute.

Martha McSally represents the Second District of Arizona, home of Fort Huachuca and Davis Monthan Air Force Base. She is a retired Air Force colonel, a combat aviator, and the first woman to command an A-10 squadron, and flew multiple missions in Iraq.

Steve Knight represents California's 25th Congressional District. Born in Edwards Air Force Base, he has served in the Army, also as a Los Angeles police officer and as a State senator. He has a wealth of knowledge on the rich aviation tradition of that district, which we will take advantage of.

And finally, Tom MacArthur represents southern New Jersey's Third District, home of Joint Base McGuire-Dix. A former mayor of Randolph, New Jersey, Tom has over 30 years of business experience in the insurance industry. And we certainly look forward to putting those skills to work here at the Armed Services Committee.

So let me welcome the six new members on our side and yield to the distinguished ranking member, Mr. Smith.

Mr. SMITH. Thank you, Mr. Chairman.

We have actually nine new members on our side of the aisle. I want to welcome them. We have two who are veterans of the Congress joining the committee and then seven new members.

Tim Walz is our first member from Minnesota. He is currently serving his fourth term representing Minnesota's First Congressional District. He enlisted in the Army National Guard at the age of 17 and retired 24 years later as a command sergeant major and has done a ton of work on veterans issues, served on that committee previously. And we have worked closely together.

Beto O'Rourke is from Texas. He was elected to represent the people of the 16th District of Texas in November of 2012. Prior to his congressional service, Beto O'Rourke served two terms on the El Paso City Council and represents Fort Bliss in El Paso.

Donald Norcross from New Jersey was sworn in to the 113th Congress to represent New Jersey's First Congressional District. He previously served in both the New Jersey General Assembly and State Senate, where he developed a reputation as an effective bipartisan reformer. Those are, you know, two words—"bipartisan" and "reformer"—that will fit well on this committee.

So, welcome.

I think some of our other Members are not here, but I will go ahead and introduce them in absentia anyway.

Ruben Gallego of Arizona is the son of Hispanic immigrants, a veteran and a community leader. He was the first in his family to attend college and later joined the Marine Corps, serving in Iraq with the well-known combat unit Lima 3/25.

Mark Takai of Hawaii was elected to Hawaii's First Congressional District, which was vacated when Colleen Hanabusa decided to run for the United States Senate. He serves in the Hawaii Army National Guard as a lieutenant colonel and took part in Operation Iraqi Freedom in 2009.

Gwen Graham represents Florida's Second Congressional District. She is the daughter of Bob Graham, former United States Senator and Governor. She worked for her local school district and is also proud to represent Tyndall Air Force Base in the Second Congressional District.

Brad Ashford of Nebraska represents Nebraska's Second District, and from 1987 to 1995, he was a judge in the Nebraska Court of Industrial Relations and then served in the State Senate until he was elected to Congress.

Seth Moulton of Massachusetts represents Massachusetts' Sixth Congressional District; graduated from Harvard in 2001 with a bachelor of science in physics. He joined the United States Marine Corps; served four tours in the Iraq War; and between those tours, earned his master's degrees in business and public administration in a dual program at Harvard University.

And last is Pete Aguilar, who represents California's 31st District. And from 2010 to 2015, he served as the mayor of the city of Redlands. Prior to that, he was the youngest member ever to serve in the Redland City Council's 140-year history.

So we have a lot of new members. Welcome to the committee. I look forward to working with all of you.

And, with that, I yield back.

OPENING STATEMENT OF HON. WILLIAM M. "MAC" THORNBERRY, A REPRESENTATIVE FROM TEXAS, CHAIRMAN, COMMITTEE ON ARMED SERVICES

The CHAIRMAN. I thank the gentleman.

And I want to just say again how much I appreciate the talent, the experience and the dedication that all the new members on both sides of the aisle bring to this committee. We are going to be—I can already tell, you are going to enhance our deliberations and decisions, and I am really glad to have you all here.

It is also true there were many more members who wanted to be on this committee than we had room for, but we definitely got the cream of the crop.

Let's turn now to the subject of our hearing today. The subject is technological superiority, how the U.S. is doing and how we can ensure that we have the technological edge we need for the years to come.

And I would ask unanimous consent that my full opening statement be made part of the record.

Without objection, so ordered.

I would just say the Constitution puts on the Congress the responsibility to provide and maintain, to raise and support military forces that can defend the country. And as we try to do that in this day and time, we have a number of challenges, one of which is that we face more different kind of challenges than maybe we ever have before. Another is that technology is moving incredibly quickly. And a third is that some potential adversaries or competitors are putting a lot of time, effort, and money into creating vulnerabilities for us.

And then another challenge can be our own system. And so that is part of the reason I think it is important for us to look, as we have been this week, at what is happening in the world and then look at what we can do to improve things, and that is part of the reason defense reform is going to be a significant part of our agenda.

So I really appreciate the witnesses we have today: Under Secretary of Defense Frank Kendall, who is leading the Department's efforts in a number of respects in this topic; and also General Ramsay, who is the Joint Staff Director for Force Structure, Resources and Assessment.

It just seems to me the key question before us is: What should we in Congress do to ensure that America has the technological superiority we require so that we meet the Nation's needs and the demands of our time?

I would yield to Mr. Smith.

[The prepared statement of Mr. Thornberry can be found in the Appendix on page 43.]

**STATEMENT OF HON. ADAM SMITH, A REPRESENTATIVE FROM
WASHINGTON, RANKING MEMBER, COMMITTEE ON ARMED
SERVICES**

Mr. SMITH. Thank you, Mr. Chairman.

I appreciate you holding this very important committee.

I welcome Mr. Kendall and General Ramsay. And this is an incredibly important topic. Acquisition reform has always been a challenge at the Department of Defense [DOD]. We are always seeking ways to improve it, but I think it is particularly important in the environment that we find ourselves in, which combines two unfortunate elements. One, an expanding and very confusing threat environment: We cannot say that things are getting less threatening or we have fewer national security challenges in the world. It is going in the opposite direction, and at the same time, they are incredibly complex.

And that is combined, of course, with a shrinking budget and the challenges of sequestration and the challenges of the reductions in the budget, and also, I might add, the challenges the government shutdown, the CR's [continuing resolutions]. Basically from one month to the next, you have frequently, over the course of the last 4 years, not known how much money you were going to have to spend, or where. So, in that type of environment, the better we spend that money, the better off we are going to be.

So I know this is something that has been a huge priority for Mr. Kendall since he joined the Department of Defense, figuring out ways to buy equipment more quickly, more efficiently, make sure we get more out of it, because we have a history over the last decade that is not pretty when it comes to a lot of money being spent in ways that did not turn out well, wasted money on a variety of different programs.

I want to particularly thank Mr. Thornberry for his leadership on this issue. It is something he has worked on for a long time on the committee. I think he understands it better than anybody and is perfectly positioned to lead the effort to try to reform our acquisition process.

And with that, I look forward to the witnesses' testimony, the questions and answers from the panel.

I yield back.

The CHAIRMAN. I thank the gentleman.

Again, Mr. Kendall, thank you for being here. The floor is yours.

**STATEMENT OF HON. FRANK KENDALL, UNDER SECRETARY
OF DEFENSE FOR ACQUISITION, TECHNOLOGY AND LOGIS-
TICS, U.S. DEPARTMENT OF DEFENSE**

Secretary KENDALL. Thank you, Mr. Chairman.

Chairman Thornberry, Ranking Member Smith, members of the committee, I would like to begin by thanking the committee for its willingness to work with the Defense Department on ways to improve the productivity and effectiveness of defense acquisition.

I request that my written statement and the accompanying materials, which provide details on our acquisition improvement efforts, be admitted to the record.

The CHAIRMAN. Without objection, so ordered.

Secretary KENDALL. The acquisition improvement initiatives that the Department undertook beginning in 2010, when Dr. Carter was Under Secretary for Acquisition, Technology and Logistics and I was his principal deputy, initiatives that we called Better Buying Power, have evolved as we have learned from our experience and gathered data on the effectiveness of our policies.

We are currently close to issuing guidance implementing what we call Better Buying Power 3.0, released last year in draft; 3.0 builds upon core aspects of earlier versions that emphasize strong performance incentives, competition, and professionalism in our acquisition workforce, and close and continuous interaction with acquisition and requirements community, which is represented here today by General Ramsay, the J8 from the Joint Staff.

Better Buying Power also emphasizes elimination of unproductive bureaucracy. The rules our program managers must follow are still too complicated and burdensome. I know the committee leadership shares this view, and I am happy to say that the administration will soon formally submit several legislative proposals designed to address this problem to both the House and the Senate Armed Services Committees. I am providing those proposals informally to the committee today. The Department looks forward to working with the committee on these proposals.

Better Buying Power 3.0 continues the core aspects of earlier versions, which shifts our focus towards technical excellence and innovation. It is a response to the technological superiority concerns that the chairman mentioned. We have provided the members with a 1-page summary, which you should have in front of you.

As I have testified to before this committee previously, I am very concerned about the increasing risk of loss of U.S. military technological superiority. I was also recently asked to provide an input to the Senate Homeland Security and Government Affairs Committee on areas in which the Congress could help the Department improve acquisition outcomes. I would like to summarize my submission for this committee.

Number one, and number one by a very wide margin, end the threat of sequestration. As the leadership mentioned, this is a huge problem for the Department. The uncertainty associated with our ability to plan without knowing what our future budgets would be with any confidence and the inadequate resources that sequestration levels would provide are enormous problems for the Department.

Number two, continue to support the Defense Acquisition Workforce Development Fund. This fund is a valuable tool for improving the professionalism of the acquisition workforce.

Number three, work with the Department to simplify the rules we already have. Mr. Chairman, Ranking Member, and I have discussed previously, we can eliminate a great deal of unproductive overhead and confusion by simplifying the rules governing acquisition today. The recommendations we are providing to the committee go a long way in that direction, and hopefully, we will be able to implement those.

Number four, avoid highly restrictive rules that limit Department freedom of action. The Department implements an almost in-

finitely varied set of business arrangements with industry, and we need the flexibility to tailor our contracts consistent with all the various types of situations that we face, which cover a very wide set of different options.

Number five, reduce the counterproductive incentive to obligate funds on a fixed schedule. In any negotiation, time is a factor that works to one side's advantage. Rigid time-based obligation requirements automatically work against the Department in our negotiations.

Number six, allow the Department to hold a management reserve to apply to programs that realize risks. Under current practice, programs that are performing well often have to be the sources of funds to repair poorly performing programs.

Number seven—and I would use this as the other bookmark, if you will, to the set of inputs—help the Department improve the professionalism of the government workforce. I believe this area has the greatest potential over the long term of improving acquisition outcomes. I have worked on and led some well-led and some not-so-well-led programs in industry and in government. Leadership and professional skills honed over decades do matter, perhaps more than any other factor that we can influence.

Again, I would like to thank the committee for its cooperation and support. Our warfighters and taxpayers deserve the best performance we can possibly achieve from the acquisition system. I know you are all equally committed to that goal. Thank you.

[The prepared statement of Secretary Kendall can be found in the Appendix on page 45.]

The CHAIRMAN. Thank you.

General Ramsay, do you have an oral statement you would like to give or—

General RAMSAY. I do, Mr. Chairman. And if I could also request that my written statement be submitted for the record.

The CHAIRMAN. Without objection.

**STATEMENT OF LT GEN MARK F. RAMSAY, USAF, DIRECTOR,
FORCE STRUCTURE, RESOURCES AND ASSESSMENT, J8,
JOINT STAFF**

General RAMSAY. Chairman Thornberry, Ranking Member Smith, and distinguished members of the committee, I appreciate the opportunity to testify before you today. As the Director for Force Structure, Resources and Assessments, I provided insights in my written statement into the Joint Staff's role in requirements generation and capabilities development process, specifically highlighting the close interaction and linkages between requirements and other Department process to include the defense acquisition system that Mr. Kendall oversees.

The Joint Requirements Oversight Council, the JROC, is charged to identify, assess, and prioritize military capability needs. And the Joint Capabilities Integration and Development System, or JCIDS, is the process that enables the JROC to meet our statutory responsibilities.

I want to thank the work of this committee as well as the Senate Armed Services Committee for providing reforms in recent years that added emphasis on our analysis of risk, cost, and schedule

very early in program development; established a deliberate, urgent, and emergent requirements lanes to better respond to our warfighter operational user needs; and to enable us to consolidate guidance documents, streamline our procedures, and mandate shorter document length and staffing timelines.

These reforms also shaped the JROC into a lean decisionmaking body chaired by the Vice Chairman of the Joint Chiefs of Staff, with the service Vice Chiefs and Assistant Commandant of the Marine Corps serving as statutory members. The combatant commanders also participate based on interest in each program.

Statutory advisors include Mr. Kendall as well as the Under Secretaries of Defense for Policy and the Comptroller, the Director of Operational Test and Evaluation, and the Director of Cost Assessment and Program Evaluation.

In the execution of the JROC's duties, we work very closely with all stakeholders to manage an agile and responsive requirements process that is intertwined with other key decision processes across the Department of Defense.

Our ultimate goal in the JCIDS process is to ensure that we remain agile and responsive and innovative so the Department can develop and deliver operationally and cost-effective capabilities to the joint force to help achieve our Nation's strategic and military objectives.

Thank you, and I look forward to your questions.

[The prepared statement of General Ramsay can be found in the Appendix on page 59.]

The CHAIRMAN. Thank you.

And let me just say, I very much appreciate the working relationship that we have had over the past year or so, Mr. Kendall, with you and your team.

But also, Mr. Smith, this is—he has been integral to everything we have tried to work on. This has been completely bipartisan, as well as working with the Pentagon, as well as working with the Senate. And I think all of us recognize that it is going to take all of us collaborating, working together to improve this system because it very much is like changing an airplane engine while the engine is in flight. We still have to defend the country while we look to make improvements.

And I particularly appreciate, Mr. Kendall, you sending up legislative proposals ahead of the budget. I think that is something that is unusual. I think it shows the seriousness with which at least you and the folks at the Pentagon take this issue. So, thank you. That helps us get a head start.

The one question I want to pose to you is this: As you know, we have had some classified and unclassified sessions for members this week about, where are we? Technological superiority: Are we ahead? How much? Are we losing it? Just kind of the state of technology, especially versus near-peer-type competitors.

We obviously can't talk specifics in an open session, but I am just wondering how you would characterize where we are and what concerns you for the American people. Kind of in layman's language, where do you think we are as far as the country's technological superiority and what concerns you?

Mr. KENDALL. Thank you, Mr. Chairman.

We are at risk, and the situation is getting worse. I came back to the Pentagon in 2010, after being away for about 15 years. And the intelligence estimates when I left in 1994 were that China was really not much of a problem for us, but in 10 or 15 years, they possibly could be, based on their economic rate of growth at that time.

I came back, and the intelligence estimates were correct. And I became, I think it is fair to say, alarmed as soon as I started seeing technical intelligence reports on China's modernization programs. And I can say the same of Russian's modernization programs as well.

We came out of the Cold War with a very dominant military. We demonstrated that military conclusively in the First Gulf War, and we have used it very effectively against any conventional force in the period since. Since 2001, we have been involved in counterinsurgency and counterterrorism campaigns, which are very different kinds of threat.

No one observed more carefully the dominance that we demonstrated in 1991 than the Chinese. And we demonstrated what Bob Work calls the "second offset strategy," which is the capability of precision munitions, in particular, but also stealth, networked forces, and wide-area surveillance, and technologies, which in an integrated fashion, gave a very dominant capability to our forces.

People have had a long time; that was long time ago. People have had quite a bit of time to think about and to do things about how to defeat that force. And what I am seeing in foreign modernizations, again, particularly China's, is a suite of capabilities that are intended clearly, to me at least, to defeat the American way of doing power projection, American way of warfare, when we fight in an expeditionary manner far from the United States. Our systems depend upon what I would call a few high-value assets, and I would start with space-based assets, satellites, which in relatively small numbers provide important functions for intelligence, targeting, and communications; and I would include aircraft carriers, which are the basis for our naval power projection, which we have a small number; and airfields, which are the basis by which the Air Force is able to project power, using mostly fighter aircraft.

Those targets that those represent to an adversary are finite. They are there in limited numbers. And the precision munitions revolution that we demonstrated has been emulated by others. So if I were to worry about one aspect of the threat, I would start by talking about missiles, both ballistic and cruise missiles. They have attacked those high-value assets.

I was an Army air defender years ago. And our best air defense systems could get maybe a 70 percent probability of kill; if you were good, maybe a 90 percent probability of kill against one incoming airplane or missile. It doesn't take much to do the math to figure out that if you send a large number of missiles against a single asset that you are going to get some through. And once those missiles become highly accurate and can kill the thing that you are trying to attack if they penetrate, then you have a problem. That is the change that has occurred. And we pioneered that change, but it has now been emulated by others.

And, without saying too much about this, the Chinese, in particular—and, again, to a lesser extent, the Russians—are going beyond what we have done. They are making advances beyond what we currently have fielded, and it is designed to threaten largely those various high-value assets.

Now, the Department is recognizing this. Dr. Carter, who is here and will be next week, I think, and I have talked about this briefly. He understands it. Bob Work understands it. Secretary Hagel understands it. So we have been doing some things to try to address this problem, but we also have global commitments, we also have readiness concerns, and we also have the threat of sequestration in front of us. So this is a serious problem for the country. And I gave testimony here last year where I talked about the U.S. being challenged in an unprecedented way. It is not just missiles. It is other things, such as electronic warfare capabilities; it is antisatellite capabilities, a spectrum of things to defeat our space systems. It is a number of things which I think are being developed very consciously to defeat the American way of projecting power, and we need to respond to that.

The CHAIRMAN. Well, thank you. I just think it is important to emphasize the need to improve our acquisition process is not just about saving money; it is about this problem of change that is going faster and faster that we are having trouble keeping up with.

Mr. Smith.

Mr. SMITH. Thank you, Mr. Chairman.

Just one straightforward question on acquisition reform. A lot of it is what goes on within the Pentagon, the culture of the decisions that are made, you know, all kinds and restructure, but from a legislative standpoint, as we here get ready to try to put together an acquisition reform package, what authority don't you have that you would like to have? What changes in the law can we give you that would give you the flexibility to do some of the things that you and Mr. Thornberry just talked about?

Secretary KENDALL. Thank you, Ranking Member. Congressman, I generally have the authorities that I need.

I don't think our problem is authorities. I think our problem has more to do with implementation of the things that we have. And that is why I emphasize professionalism in our workforce so much. We need to give our people the tools and the training, the experience they need to do their jobs well. And then we need to get out of their way a lot of things that make it harder for them to do their jobs.

I spoke to Navy Admiral Dave Lewis a couple of years ago, he is a PEO, program executive officer, with the Navy. And he told me that he was most effective as program manager when he was running the DDG-51 Destroyer Program when he had a multiyear contract, because he could focus entirely on managing that contract and managing the performance of industry to do a better job of delivering product to the Navy. And what was different, of course, in the multiyear contract environment that he was in was he didn't have to come in for repeated staff reviews all the time that took up all of his time and distracted him from actually doing his job.

I took that to heart, and I think we really need to work hard to relieve some of the burdens that we are imposing on our program

managers and our acquisition workforce. They are well-intentioned. And a lot of the recommendations that we have prepared and brought over to the committee go along those lines. They relieve some of the burdens that are on our people.

Developing the professionalism of the workforce is a task that takes time. And I want to compliment our workforce. We have, I think, an exceptionally capable and professional workforce, but it can be improved. We have a workforce where the demographics are a bit troubling. We have a lot of people close to retirement and a lot of young people who just came in, and kind of a bathtub in the middle. We have to manage our way through that. So we need tools to build up that workforce and make it more capable over time. And we would like the help of the committee on that in particular.

Mr. SMITH. Yeah, one of the complaints that we hear all the time from industry in terms of, you know, specifically going over budget on projects is the amount of overseers, regulators that they have to deal with on a day-in-and-day-out basis, that that drives a lot of their cost. I have talked to a lot of people about this in the think tank world, and they say, you know, true or not, live with it, because it is not changing. But it seems to me like if it is something that is that big a problem, we ought to focus on it. And their argument is they spend more time trying to justify every decision they are making than actually doing their work.

Do you see this as a problem? Are there too many bureaucrats, you know, overseeing the making of our military equipment in a duplicative fashion that is not actually helping?

Secretary KENDALL. The short answer is, no, but I think we can improve in that regard. We have been working for the last few years with our Department's auditors, who don't report directly to me but have worked with me very closely on this. There is a very large backlog of audits that needs to be done. That basically is a problem for us.

There is a problem with using statistical audits as opposed to complete audits and finding ways to be more effective on how we focus the resources that we have. The Defense Contract Management organization—that does report to me—supervises our contractors. And I think we have to strike a balance there. I don't think we are vastly off on that. I don't think that is a core problem for us. We recover quite a bit of money through our auditing process each year, much more than the auditing costs us. We do find quality problems, and you will read reports about those occasionally in the press. And so we do have to have some level of that.

I don't think our balance is all that far off, but I do think we can improve.

Mr. SMITH. Okay.

Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. Thank you.

Mr. Wilson.

Mr. WILSON. Thank you, Mr. Chairman.

And thank both of you for being here today.

General Ramsay, the acquisition workforce is actively managed, including providing a number of incentives and career path opportunities. How does that compare with the requirements workforce?

Do you have any recommendations for improving the career management of the requirements workforce?

General RAMSAY. Thank you, Congressman Wilson.

Thanks to the work of this committee about—about, I think it was 2007—there was statutory requirement, just as the acquisition workforce, for a requirements workforce that was more professional. So we now have a five-level certification program required for all the folks who touch requirements, whether they are military or civilian, to go through Defense Acquisition University. One of those programs is for senior leader requirements. I went through that program 2½ years ago when I took that job. So we think we have got a very robust program that goes back now. We implemented this starting in the beginning of fiscal year 2008, so the workforce we have in place is much—they are a professional workforce. They obviously rotate out probably more than the acquisition managers do because many of these folks are wearing uniform like I am. But the folks that come into this process have various certification process. So the short answer is I think we are right where we need to be, and we are getting better with time.

Mr. WILSON. That is encouraging.

And, Mr. Kendall, thank you for raising concerns about threats to our country. And, we are not just talking about money; we are talking about being technologically ahead to protect the American people, and thank you for raising that.

Additionally, we do see that the Small Business Innovative Research program as an important tool of the Department to tap into vital innovative technologies from small businesses. What actions can the Department take to improve the utilization of the program, especially the use of Phase III's integrated into a larger acquisition program of record?

Secretary KENDALL. Good question, Congressman. We are looking at that program. It has been a very successful program. We get fairly good transition rates, but there are some issues with it. The amount of time it takes to get an award, and getting from one phase to the other, and then getting into where you are actually producing things has been a problem historically.

We are looking at—if you look at the sheet of paper you have in front of you, under “Better Buying Power 3.0,” we are looking at all of the different categories of research and development spending that we have, and I have teams working those right now, including things like Small Business Innovative Research and Rapid Innovation Fund, for example, and our other areas of contract at R&D [research and development] as well as independent R&D that industry does. We need to try to get as much as we can out of each of those individual pots of money, if you will. So we are looking at that hard now, and we will be coming back with some recommendations in the next few months on that.

Mr. WILSON. Well, good program, and however we can improve it, we appreciate that.

In meeting with service acquisition executives earlier this week, they recommended spending more time at front end of a program, such as thorough market research, modeling, and simulation for trade space analysis, developmental planning, and technology mat-

uration. They described a process where more time would be spent early in the process but which would save time overall.

Do you support that recommendation? What recommendations do you have to make the process to do a better job?

Secretary KENDALL. I do agree with that. I think it is very important we take the time upfront to make sure we have got it right, particularly in a time of scarce resources, as we cannot afford new starts that are false starts. When we start a program, we should be reasonably confident that we are going to take it through to completion and field the capability. And doing the system engineering upfront, doing the requirements tradeoffs upfront, making sure the programs are affordable, these are all very, very important. Making sure the business strategies and risk mitigation plans are appropriate is incredibly important. So I agree with that comment. That is one of the things we are trying to do.

Mr. WILSON. And you have already referenced this, but it is so important, on page 3 of your testimony, quote, "Russia and others, such as Iran, are also fielding precision missiles and other capabilities that threaten our power projection capabilities," end of quote.

And I think, again, if you could restate your concerns, the American people need to know this.

Secretary KENDALL. The concern is that we are dependent upon a very small number of what I call high-value assets to implement conventional military power, generally far from the shores of the United States. And as you get closer to someone else's homeland, their ability—they have certain advantages at that point. They have, obviously, land-basing for their systems. They can have mobile systems that are hard for us to target. We have a small number of assets which are carrying the bulk of our power projection capability forward. They are either Air Force bases that are already in the region, or they are carriers and carrier strike groups that are coming forward. And if you can target those and attack them with precision missiles, then you have a significant advantage. That is the situation we are increasingly facing.

Mr. WILSON. Thank you very much.

The CHAIRMAN. Thank you.

Mr. Courtney.

Mr. COURTNEY. Thank you, Mr. Chairman.

And thank you to the witnesses.

Last Saturday, one of the drumbeat of snowstorms up in New England, all of my events were cancelled, and I finally got a chance to sit down and watch the PBS special on Hyman Rickover, which, again, I would encourage all members to review because it really is squarely in the sweet spot of what we are talking about here today. And he, obviously, was an innovator and a maverick. That is almost an understatement. He, obviously—the movie—the documentary is more about almost his struggles with the bureaucracy than it was with the technology of building nuclear-powered aircraft carriers and submarines.

And two of your initiatives are focused on innovation: One is the DARPA [Defense Advanced Research Projects Agency] initiative, and then is the acquisition reform. And I was trying to visualize reading that how Hyman Rickover, who I think has still provided us with undersea dominance based on what he did 60 years ago,

you know, would function today and how you see that as sort of trying to nurture that kind of amazing creativity that will help us with this technological gap that we are facing.

Secretary KENDALL. Rickover established a lasting culture and tradition in the Navy, a nuclear power Navy, which I think everyone should admire. It is a terrific organization. He was also very much a person who is—a very strong engineering background, very strong leadership model. I think we could emulate a lot of that, and we should be. When I talk about developing professionals, he is the sort of person that I have in mind.

Everybody can't be a maverick, obviously, but you do have to—I find myself constantly trying to beat back the bureaucracy, which has a tendency—if you have looked at any of the literature on bureaucracies and how they grow, there are certain rules where all bureaucracies sort of self-perpetuate and increase their size over time. And it is just a constant struggle to push back on that and to try to make sure that people focus on substance as opposed to form in the things that we do. It is one of the reasons we are asking for some of the legislative reforms that we are asking for, to try to get rid of some of those bureaucratic tools and replace them with things that are more substantive. So I generally agree with your point about that. It is consistent with my point about professionalism and the importance of leadership.

Mr. COURTNEY. So can you talk about the DARPA piece of your proposal in terms of where that creates that space?

Secretary KENDALL. Yeah. I think you are referring to what we call the Aerospace Innovation Initiative. Yeah, this will be in our budget, and I have been authorized to talk about this a little bit even though the budget is not out yet.

The Aerospace Innovation Initiative is consistent with one of the Better Buying Power 3.0 initiatives on prototyping and experimentation. And what it will be is a program that will be initially led by DARPA, but it will involve the Navy and the Air Force as well. And the intent is to develop prototypes for the next generation of air dominance platforms, X-Plane programs, if you will. To be competitive, the Navy and the Air Force will each have a variant that is focused on their mission requirements. There will be a technology period leading up to the development of the prototypes, and it will be consistent with what we talked about earlier. We will do the upfront work to make sure you are doing the right thing but then reduce the lead time to having the next-generation capabilities. So this is the—this will lead to the systems that will ultimately come after the F-35, essentially.

Part of the program is an airframe oriented program with those X-Plane prototypes. Part of what we put under the Aerospace Innovation Initiative is a jet engine development program for the next generation, also competitive prototypes for the next-generation propulsion.

Now those are going to be two core parts of getting to the next generation of air dominance. There are other elements of the Department's program that are laid out that get to other aspects, but that is what the Aerospace Innovation Initiative is.

Thank you for asking about it. I think it is an important initiative. It falls under a broader Defense Innovation Initiative that

Secretary Hagel announced last fall, which covers our business processes, operational concepts, the way we train people, and a number of other things, but it is consistent with that approach.

Mr. COURTNEY. Thank you. Again, one sort of fun fact in that documentary was that it took 5 years from the moment we had an atomic-powered light bulb to the launching of the *Nautilus* as a nuclear-powered submarine, which is just—you know, it is hard to even imagine. The Navy was telling him it was going to take 50 to 60 years to develop a nuclear-powered submarine, and he did it in really less than 5 years. It is—

Secretary KENDALL. If I can respond to that. I have been asked by—not too long ago—by a reporter if I thought the Department was taking too much risk. I think we are not taking enough risk. And one of the things that Rickover did in that program was he did it in a managed, you know, professional way.

But we can't expect our programs to execute perfectly. If we are going to be the number one country in the world militarily, we have to do things no one has ever done before, and that inherently involves risk. We can't—if we take the time to reduce every risk to zero, we will never get there. We have got to be willing to accept risk in our programs and then deal with the fact that, because of that, some of our development programs are going to have overruns and schedule slips. It is a part of the process. It is part of the development process. So expecting perfection is really the wrong way for us to be thinking about development.

The CHAIRMAN. I appreciate that exchange. Risk and leadership, two keys to this whole thing. That was very, very interesting.

Mr. Nugent.

Mr. NUGENT. Thank you, Mr. Chairman.

And I want to thank our two panelists today. It is always great to hear from you. I think you usually do it in a way that we can understand, which is a good thing.

This is really a two-part question, and it is for both Mr. Kendall and General Ramsay. What are the lessons learned from the Department's rapid acquisition program and what extent can those lessons be applied to accelerate other DOD acquisitions?

And the second part of that question is, from a warfighter's perspective, are they connected well enough to allow to get the needs that they have to get actually an acquisition? And then when it gets to acquisition, a lot of times, you know, we are trying to get to a hundred percent perfect, I think you touched on it, when 80 percent or 90 percent at least to get it out to the warfighter's hands would be appropriate. And as one of the things that we have seen with DOD acquisition is they do a really good job when you start building incrementally onto a program, and when you try to get to 100 percent, that just stalls programs, I think.

And so it is really a two-part question. I would love to hear your answer.

Secretary KENDALL. I think, like a lot of other things, the secret is to have the right balance. The rapid acquisition programs, I think, have been very successful. I look at MRAP's [mine-resistant ambush protected vehicles], for example, as a classic example there. And what we have done there is focus on the essentials of what we are trying to provide to the warfighter and go for that and

get that done as quickly as possible. So we have accepted risk in those programs. And we haven't done perfect programs, but we have done programs that worked and saved lives and were very effective on the battlefield.

I chair a group now called the Warfighter Senior Integration Group, which is in very close touch with our people doing operations, our response to what we call urgent operational needs. And we use rapid acquisition approaches to address those needs. So where they are applicable, they work very well.

I am going to—just to be—on the other hand, okay, there are programs where that isn't the right way to go about it.

Mr. NUGENT. Sure.

Secretary KENDALL. And I can think of some programs where we have done rapid acquisition type demonstrators, prototypes, and then try to take them to production and field them, without having done the things we need to do to make sure those are reliable and will really work in the environment over a period of time. So that is a little different than when you are trying to fight a warfighter and do something right now in one specific environment. So, again, the secret is balance, but the programs you cite I think have been very effective.

And one of the things we are trying to do is preserve that capability. As our operations in Iraq and Afghanistan have drawn down, we have tried to find ways to institutionalize that rapid acquisition approach.

I published just recently our DOD 5000.02 instruction, which is our guidebook for all defense acquisition, basically. It is kind of the Bible for defense acquisition. And we included a rapid acquisition model in there, and a couple of approaches where urgency is really what drives you, and there you cut corners, you take risks, you do things you wouldn't do otherwise, you cut away the nonessential requirements, focus on the essential ones to try to get the capability out as quickly as possible. So I appreciate your comment. That has been an effective program. And when it is appropriate, we want to continue to do it.

General RAMSAY. Congressman, I will just piggyback on Mr. Kendall's comments by saying from my 2½ years' experience, the authority and the guidance that this committee gave us back in NDAA [National Defense Authorization Act] 2011 has been absolutely wonderful to support the warfighter.

I would offer kind of two vignettes to answer both of your questions. We are really good at adapting programs we have, and we are really good about delivering those things that truly are deliverable in a very short amount of time. So MRAP, Mr. Kendall used that example.

Let me give you an example of both of those. Obviously, one of the biggest areas that we have been addressing for the past decade is the area of permissive ISR [intelligence, surveillance, and reconnaissance], so the MQ-1, MQ-9 platform, the Reaper being the MQ-9. One of the things we figured out was they are not an inexpensive aircraft. They are a phenomenal capability. And everybody wants them; the warfighters want them.

So sometimes the solution is not more of the same; sometimes it is modify what you have. So one of the things we have done

through the rapid acquisition process is adding extended-range kits to the MQ-9s we have. We continue to buy more of those. So eventually the fleet will be MQ-9, more capable platform, made even more capable through the joint—this rapid acquisition process.

The second thing I will offer is when you take something that is developable in a short amount of time for the warfighter, we can do that very fast. So a great example just in the last few months has been with the Ebola crisis in West Africa, one of the things we were asked to do by the government was to come up with a way to transport our own people to isolate them the way you see a commercial company out of Atlanta. They do that now. We went from, “I need something,” to funding it, finishing the requirements, developing it, and fielding it in about 3 months. And that is the transportable isolation system.

So where it is doable and manageable in a very short amount of time, we can deliver that very fast through the process. And, as Mr. Kendall says, we can cut through a lot of red tape.

Mr. NUGENT. Well, I thank both of you for your answers.

And I yield back.

The CHAIRMAN. Mr. Peters.

Mr. PETERS. Thank you, Mr. Chairman, and thank you for having this hearing. It comes at an important time.

As you have outlined, these threats are expanding. They are new, and they are essentially technological. And yet one of the biggest problems we have here in procurement is harnessing the powers of our own technology to get that into the—to get the innovation that is happening here in the United States into the military. And so this is not just an issue of management or budget, but it is an issue of security. And it is my observation that we really just can't have this friction among these moving parts anymore.

I would offer some comments I have heard from industry, on which we rely to build and many cases develop these products, that they don't have a good relationship in terms of interaction and that they weren't involved necessarily in the Better Buying Power programs development as much as they would want. I just encourage you to be talking to those folks about what it is that we are missing—we are missing, you are missing—and how that program can be improved.

Obviously, there are issues of culture at any bureaucracy. In the DOD, I think you have identified some of those. And with respect to Congress, I do agree with the recommendation that we repeal sequester, and if there is a vote on that, you would have my support and my vote.

I wanted to ask a specific question in the context of IT [information technology], where there is a major transformation with the ever-growing cloud, mobile, social computing requirements and the acquisition of network equipment that has to fundamentally change if we are going to keep pace. And you—in August 2014, to your credit, your office released a set of competition guidelines; called out restrictive specifications as an impediment to competition; acquisition workforce complacency; lack of accountability; and the use of sole-source justifications; and cautionary language about vendor lock; offered general techniques and approaches to support

competition; and a discussion on the benefits of employing an open systems architecture, all to your credit.

I wanted to ask you two questions. One is, how would you characterize your implementation of those guidelines to date, specifically with respect to IT acquisition. And then what are some specific timelines and actions for implementing these good recommendations that you would like to propose to promote competition?

Secretary KENDALL. There are two different forms of IT, I think, that we have to talk about. One is IT infrastructure, which is basically all of the hardware and software that provides the networks that our applications run on. The other is the business systems that run on those networks, the applications, if you will.

Working closely with the CIO [chief information officer] on the infrastructure, which is largely his responsibility, and we have some good modernization programs, I think, in effect there, which would be much more efficient.

On the business systems side, we are trying to get a more flexible model. For a long time, the Department was applying a model which was somewhat rigid in terms of how we wanted to see programs structured. And we are trying to learn from commercial industry more about how to do that.

Now, I can tell you from my own commercial experience that implementing new business systems is very, very difficult, even in the commercial side of the house. Trying to do business systems at a major defense contractor I found to be a very, very challenging task, and there are a lot of histories of people having problems with that. The Department has its own sordid history, I think, in business systems. And I think we have improved there. I think we have a long way to go.

One of the things that I am trying to do is build up our body of professionalism in that area. It is a very specialized acquisition field. It is not the same as a weapons system. The transition from an old business system to a new business system is much more difficult than the transition from an old piece of hardware to a new piece of hardware.

The way you manage industry in that, the way you set up incentives, the way you ensure you have open systems, so that you have flexibility and aren't in a vendor lock situation, they are all important in how we structure that.

So I think we are making progress. It is hard to put out specific goals, because we tend to work on a program-by-program basis. I am trying to establish a center of excellence for business systems, which I think will be helpful to the Department, essentially an internal consulting organization of people who have had experience implementing business systems. And one of the hardest things is transitioning them into a field and replacing the things that are already there, getting the workforce trained and so on.

Mr. PETERS. When we——

Secretary KENDALL. Another thing is——

Mr. PETERS. When——

Secretary KENDALL [continuing]. Our requirements.

Mr. PETERS. I was just going to say about timelines—I am running out of time here myself—so I want to see if you can give me

some sense of how quickly you saw some progress in this transition.

Secretary KENDALL. We are doing—well, one that I think we have really turned the corner on and are doing much better on, although I don't want to jinx it, is electronic healthcare records, which we have moved to a more commercial model on. We are in source selection for that now. I have got a top management team working that. I think we are going to do a pretty good job with this one, make it a good model for how to do this.

Others, I think we have learned from our mistakes. Some of our ERP, our enterprise resource programs, I think, are coming along and doing better. We had a financial management system in the Army which struggled a little bit to be put in the field last year that is doing all right now.

So I think what I would have to do is look at the specific things we are doing and where you would see evidence through those of progress.

Mr. PETERS. My time has expired, but maybe if you can get back to me specifically—

Secretary KENDALL. Sure.

Mr. PETERS [continuing]. On IT acquisition in writing, that would be helpful.

Secretary KENDALL. Happy to do that.

[The information referred to can be found in the Appendix on page 69.]

The CHAIRMAN. As you all know, they have just called votes—excuse me, two votes. My intention is to go, say, another 10 minutes or so and then recess to go vote.

And then I am going to come back and continue the hearing, with the indulgence of our witnesses. You all can have a cup of coffee or something, if you don't mind, and then we will be back after that.

Mr. Bridenstine.

Mr. BRIDENSTINE. Thank you, Mr. Chairman.

And, Mr. Kendall, thank you for being here.

And General Ramsay, thank you.

My question was for you, Mr. Kendall. You mentioned three high-value assets specifically. You talked about Air Force bases. You talked about aircraft carriers. And you talked about space. And that these high-value assets represent a relatively limited number of targets that enable the enemies of our country ultimately to have an advantage when we are on the other side of the world, and certainly that is a concern of mine as well.

What I would like to talk to you specifically about is space. When you think about architectures in space, we currently have in space from the commercial sector literally hundreds of satellites for communications. And if we were to leverage those satellites, we would in essence very quickly disaggregate the targeting solutions for our enemies and at the same time create more resiliency and redundancy in space.

Additionally, when you look at current acquisitions of, say, WGS [Wideband Global SATCOM] satellites and the capabilities of these satellites, we are talking about the ability to transmit 7 gigabits per second compared to what the private sector is putting into

space right now, which is, you know, 140 gigabits per second, and that is this year. Next year we are going to be multiple hundreds of gigabits per second that the private sector is developing and launching, and at the same time, we are going to continue launching into the future, owned and operated by the military, satellites that only can produce 7 gigabits per second.

My question for you is when you look at disaggregation and resiliency, when you look at the capabilities of the private sector and you compare that to maybe even, you know, as DARPA was involved in generating or producing the Internet, it wasn't until the private sector ultimately got a hold of it and started taking advantage of it for commercial purposes that we actually leveraged it inside the military to where we could actually have an advantage. And if you look at satellite communication architecture, the systems exist in space now, and it seems to me that we are not taking advantage of it, and if we don't, our enemies possibly could.

This, I think, represents a challenge that we have to face as it relates to the acquisition of access to a global communication architecture that already exists in space.

My question for you is as we go forward, will we get proposals from the Department of Defense to take advantage and leverage these assets that already exist and, of course, the rapid advancements in technology that are happening right now?

Secretary KENDALL. You make some very good points, and I think the short answer is yes. Because of concerns about the survivability of our space assets, we are looking at a wide range of alternatives to the way we currently do business. We have a system called EHF [Extremely High Frequency], it sounds like you are familiar with these, which is a very secure communication satellite. And we have to have satellite systems that provide communications that are secure against jamming, secure against cyber attack, and provide encrypted communications for us, and some of those do things like support the strategic deterrent. We also need to have fairly high bandwidth in order to support current operations in certain places, and we have leveraged commercial satellites to some degree, but we are relooking now at our architectures because of the survivability problem that I talked about and you mentioned to see if disaggregated architectures of one type or another.

And I think one of the things we do have to look at is whether we can effectively disaggregate by reliance on commercial systems. And we have to be sure that they are going to be available to us in wartime, that we will have the capacity that we need. So there are some questions that we have to answer there. And we have to look at their resiliency to various threats, not just to direct attack. But the short answer to your question is yes.

And General Ramsay may want to comment on this, because it is largely a requirements question.

General RAMSAY. I will just piggyback on one word that Mr. Kendall mentioned, and it is a great issue to discuss further, and it is disaggregation. This has been a big topic in my 2½ years in this job has been how do we—how do we look at space as a domain, and disaggregation could be doing things that we currently do in space by not doing it in space anymore.

So we are looking at the whole soup to nuts. And as Mr. Kendall touched on, the big issue is there are certain things we have to do that are very protected, very secure that may not have the bandwidth commercial satellites do, but we really are very much wedded to the commercial backbone, and I just see that increasing over time, but it is finding that right balance in the future.

Mr. BRIDENSTINE. I have about 20 seconds left. Just something to think about. Currently when I talk to folks in the Pentagon, they talk about buying megahertz, they are talking about buying spectrum. And with spot beams and all the technologies that are advancing today, we need to start talking about—for the taxpayer as well as for the warfighter, we need to start talking about, how do we purchase capacity, high throughput capacity, and putting it in terms of dollars per gigabits per second, if that makes sense.

The CHAIRMAN. I thank the gentleman.

Mr. Walz.

Mr. WALZ. Thank you, Chairman.

And thank you for holding this hearing.

Mr. Kendall and General Ramsay, thank you for your testimony both today and this week, very enlightening.

I would just like to—two questions: One, are we making some improvements now, and I want to give the case study from an end user perspective on the Crusader project as that came forward, and it felt like to me that there was very little input from the end user side of things. The Crusader was 1995; the Howitzer piece that was approved, you got the prototype in 1998. We went down, and we were starting to manufacture, and it was cut off in 2002 by the Secretary.

Can that type of thing still happen today? I mean, does that happen in terms of the acquisition, because from a—both in preparation from the fielding of that and the training from the end user, artilleryman, that was out there with that expectation and all the changes that went into play when that was cancelled that far down the line—does that still happen?

Secretary KENDALL. It hasn't happened recently. I am very familiar with the Crusader history. It is one of a number of programs that was started, and we spent quite a bit of money on it and then cancelled it. Part of the legacy of the Crusader was that it was a Cold War-oriented system at the time it was started, and the idea was to have a very efficient artillery piece that could be used in Europe more than anywhere else against the Soviets at the time. As the Cold War ended, the Army stuck with the program for a while. There were some technical issues. There were some cost issues. It was really a stretch. It was really a high-risk system, if you will. And it got into problems in development. Then it got into problems in affordability. And the Army came to a point, after operations in Kosovo, where the importance of deploying rapidly to a contingency really became a dominant consideration in their requirements. And I think that had a lot to do—

Mr. WALZ. So the inability to move it—

Secretary KENDALL [continuing]. With the Crusader being cancelled as well. So I think if—things change. And sometimes the threat changes so much—or the situations, as you set the pace,

change so much—that you really do need to revisit prior decisions, and in some cases, it is appropriate to stop a program like that.

Mr. WALZ. I think——

Secretary KENDALL [continuing]. But I think we need to be very careful——

Mr. WALZ. It takes courage, though, to do that, right?

Secretary KENDALL. It does take courage to do that.

Mr. WALZ. So they would—because I think it would—history shows out, it was probably the right thing.

And my question is, and just quickly as you see this, at what point does the end user come into that? And I say that because I think you are absolutely right. That was a transition from Cold War to a new one. We have a wealth of knowledge amongst war-fighters that have been on the ground. Are we using that—in terms of—is that fielding into the decisionmaking?

Secretary KENDALL. I think it is, but I think you have to be careful, because there is a tendency to think of the current fight or the most recent fight as the one you are always going to have to worry about, and I think at the current time it is probably the opposite of that in some ways. The counterinsurgencies we have been fighting are probably not the model we should be most concerned about going forward. It is very hard for people to anticipate the next war. We are almost always wrong about that.

Mr. WALZ. Yeah.

Secretary KENDALL. And it is important for a country like the United States to have general purpose forces that can do a lot of different things. And I mentioned earlier that right now, particularly with resources as tight as they are, that we really need to be very careful about our new starts and not start programs that aren't going to be the right program for us for some time to come.

Mr. WALZ. Very good.

I yield back.

Thank you both.

The CHAIRMAN. Thank you.

Ms. Walorski, there is, I think, 350 people who haven't voted yet. So if you would like to go ahead, I think we have got time.

Mrs. WALORSKI. I think we have time.

Thank you, Mr. Chairman.

Thank you, gentleman, for being here.

My question is twofold. One is—I co-chair the working group here on electronic warfare. And knowing the comments that you made on Wednesday and the comments [Admiral] Greenert has made before on the next large domain of our vulnerabilities, so my one question is: What can Congress do to help DOD streamline and bring attention and effectively address that electronic warfare problem?

My second question quickly is: What about the issue of trust as we look at acquisition? You know, I represent the State of Indiana. I have a variety of different types of assets there.

And the question I always get relative to this issue of acquisition reform is nobody trusts the Pentagon and the lack of trust—no relationships, lack of trust, nobody believes anything on the side of the private industry or newer people trying to get in.

Could you just address those two issues?

Secretary KENDALL. It is probably easier to address electronic warfare.

We do have some shortfalls in electronic warfare. And the Defense Science Board did a study on this area recently and made a number of recommendations. And some of those we were able to take into account as we prepared our budget. Others we need to do additional study on. So that is an area that is getting a lot of attention right now.

When I talked about what Russia and China are doing in particular, electronic warfare is a fundamental concern and it is an area that, because of the types of threats we have been dealing with, we have not focused on nearly as much as we probably should have.

As to trust, the military is still one of the most trusted institutions in the country. I am a little surprised to hear you say that. Industry—and I have to tell my government counterparts this often because I have worked in industry quite a bit—is we need to appreciate that industry doesn't necessarily trust us in how we do business and we need to be very transparent and clear in why we are doing things and how we are doing them.

And I don't want to go into any examples, but I think we have to remind ourselves that trust can't be assumed. It has to be earned. And you do that by your behaviors, by being as transparent as you can about what you are doing and why you are doing it.

Unfortunately, all of our source selection processes, which is where this often comes up as an issue, have to be protected because of the proprietary information involved and so on. So people get limited visibility into why someone was selected over someone else.

I tell the story often that I don't think there has ever been a proposal manager who came back after he lost and told his boss that he lost because he wrote a bad proposal. They always come back and they say, "I lost because they like this other guy" or because of some—you know, something that is not, you know, self-deprecatory.

Mrs. WALORSKI. Well, let me ask you this—

Secretary KENDALL. So I think you have to be careful about that, too.

Mrs. WALORSKI. Yeah. I understand.

But do you at least agree that there has to be—if we are really going to talk about how are we going to do this with this budget environment, with the vulnerabilities environment, like that, I mean, do you at least agree that that issue with relationships and trust—something has to happen there, I think, in order for—or I wouldn't be hearing it—and I am one of the younger members of the team here—so that at least has to be addressed and there has to be some kind of effort put forward where there is some kind of an atmosphere of trust?

Secretary KENDALL. Yeah. I agree.

And we worked on our relationship with industry very hard. I was going to respond to the earlier question on that.

We have reached out to industry. We take inputs from industry associations and from individual firms. I am very accessible to industry. My staff is very accessible. My manufacturing and industrial base lead is very open to industry.

And we have solicited inputs from industry for all of the different versions of Better Buying Power. And we have taken them into account, and they have affected what we have done.

We have listened to industry on issues like lowest price technically acceptable—there are concerns with that—commercial end items. So we are trying to respond to industry's concerns.

At the end of the day, as somebody mentioned, there has to be an effective partnership with industry. We sit down. We try to negotiate the best business deals we can and protect the taxpayers' interest, but we also have to live in an environment where industry is motivated to come do work for us, where there is a reason for them to want to come work for the Department besides just patriotism.

And we need to be able to attract non-traditional firms to work with us, firms that, you know, there are—for which there are some barriers to entry, if you will, into the marketplace for defense. So it gets a lot of attention, and we have to, again, strike the right balance.

Mrs. WALORSKI. I appreciate it.

And, Mr. Chairman, I yield back. Thank you.

The CHAIRMAN. Thank you.

It just seems to me that, in addition to transparency, simplicity of the process with accountability for decisions go hand in hand with that and can help build added trust, and I know that is part of our mutual goal here.

I think we are going to take a break. And, again, we have two votes. Again, appreciate very much you all's indulgence while we go do that. And we will recess for the time being to reconvene after votes.

[Recess.]

The CHAIRMAN. The committee will come to order.

Again, thank you all for your patience as we finish those votes.

Ms. McSally, would you like to take time?

Ms. MCSALLY. Absolutely.

The CHAIRMAN. The gentlelady is recognized for 5 minutes.

Ms. MCSALLY. Great. Thank you, Mr. Kendall.

And thanks, General Ramsay. It is good to see you again.

We were just reminiscing about, when I first met General Ramsay, I was a captain and he was a major.

So it is great to see you continuing to serve in such a high capacity, and it is wonderful to be working with you.

So I have got two questions. One is related to the development of follow-on aircraft. You know, as you may know, I flew the A-10 Warthog and there has been a lot of discussion about the future of the A-10.

But under the assumption that the A-10 sticks around for a little while longer and if we could agree—maybe you won't agree with me—that the Joint Strike Fighter does not provide capabilities and we decided we wanted to develop an A-X at some point, like today. We decided we are going to develop an A-X today, it needs to be a light attack aircraft to be able to do the things to protect our men and women in harm's way, what are we talking about timeline-wise?

I mean, just to—I want to just be able to frame the discussion, and I know it is hard because you don't know what the requirements are. But are we talking like 15 years, you know, to develop something where we haven't even identified it? And what could we do to speed that process up?

And then the second question is related to—you mentioned the constraints of sequestration. But, also, when we are spending money based on the end of the fiscal year, use it or lose it, even though we have had deep cuts—and I have seen them, and I have seen them in the military—that is also a very inefficient way to do business. And even last year—I know friends still in uniform, and I know friends who are contractors now—they were still on a spending spree of sorts in the last week in September, you know, with the money.

So what can we do to address that? Because, I mean, we are under very difficult financial, you know, resource limitations right now, but we are still on a spending spree at the end of the fiscal year. So what can we do to help fix that culture and that dynamic?

Secretary KENDALL. I am going to let General Ramsay address the next light attack aircraft that we are going to buy, which I don't think we have one of those in the budget at the moment.

But the issue of use it or lose it is a real issue, and I—and it was what I was getting at earlier about not putting our people in a position where time is working against them and they have to spend money or they feel pressure to spend money.

We have looked at that. And it tends to happen on the O&M [operations and maintenance] side of the house where money expires every year, and it also tends to happen where people are buying things like office products and so on where people will stock up at the end of the year.

And I don't know—I don't have good data on the magnitude of that abuse—or I consider it abuse if we are buying things we don't need just to spend money.

Ms. MCSALLY. Yeah. Those are full-service contractor things—

Secretary KENDALL. And I tell the story about, when I was a lieutenant in the Army, we would fire ammo off at the end of the year so that we would get the same amount of ammo next year.

I have had fighter pilots talk to me about going out and burning holes in the sky just to use up gas because they wouldn't get, you know, the O&M money for training next year, even though it wasn't a useful use of the resource. And I think that is a problem.

And the Defense Business Board talked about how the Defense Department tends to be a culture of spending as opposed to a culture of cost control. That is one of the fundamental things we have been trying to get after in the whole set of Better Buying Power initiatives.

We try to force our managers to address cost control as a fundamental mission and to track their costs, understand their costs, and try to beat them down and to free up resources for things we really need. So if we do have end-of-year money and we can repurpose it, it needs to go to things we really need and not just be spent because it is there to be spent.

And I will let you address the next-generation.

General RAMSAY. Congresswoman McSally, boy, that sounds good when you go back to a press conference we talked about in 1993. But it is great to see you again. And congratulations.

Obviously, the A-10 subject has been discussed a lot with Congress, but also in the building. And I am not going to repeat all the things that my Air Force has said, but I will just say—

Ms. MCSALLY. Yeah. I just don't even want to get into that.

General RAMSAY. Yeah.

Ms. MCSALLY. It is just more if we are going—

General RAMSAY. If we are going to do it.

Ms. MCSALLY [continuing]. To develop something else, what does it look like?

General RAMSAY. Let me kind of tie it into the Aerospace Innovation issue that Mr. Kendall hit on earlier.

We are looking at this—you know, one of the things that JCIDS does is—we are not looking at specific mission areas. We are looking at domains and how to—how are we going to fight the future fight. So part of the A-10 issue, besides the fact that it is an aging aircraft, is what is right for the high-end fight of the future.

So as you well know, we are looking at this from a multitude of angles: the permissive environment, the huge dearth of weapon systems that this committee has supported us buying over the last 10 years that allow us to do some pretty remarkable things, and maintaining the technological edge to do that.

The short answer to your questions is, if we started today—and I will really defer to Mr. Kendall on a timeline—we are probably talking about 15 years for a full developmental program. There are some low-end things out there that other nations are buying we could do much faster, but we don't think that is the right thing for us for the high-end fight of the future.

Ms. MCSALLY. Yeah. Thanks. That is really what I was getting at. I didn't want to get into the politics of it all.

But start to finish, if we decided—and thanks so much for—15 years is a good—that is what I figured it would be, but I wanted to make sure that that was my understanding.

So part of the dialogue we have for the future capabilities—

Secretary KENDALL. If we built a low-end light attack, we could do that very quickly. There are off-the-shelf possibilities—

Ms. MCSALLY. Okay.

Secretary KENDALL [continuing]. For that. I mean, Textron has done a system on their own money which could possibly fulfill that need. We have done a propeller-driven light attack we have given to the Afghanistans. And there are planes around the world we could look at modifying and using.

If that were the only purpose for the aircraft, we could do it pretty quickly, I think. The problem is, if we want something that is going to give us air dominance for, you know, another generation—

Ms. MCSALLY. Right.

Secretary KENDALL [continuing]. That is a very, very different program. That is a 10-year program.

Ms. MCSALLY. Right. Thanks.

And my time is expired. Thank you.

The CHAIRMAN. Thank you.

Mr. Scott.

Mr. SCOTT. Thank you, Mr. Chairman.

And I share the concerns about the loss of the A-10, especially as far out from the basing of the F-35s. That is, I think, my primary concern. I understand it is an aging system. I would sure feel better about standing the A-10 down if we were closer to the basing of the F-35.

And as we talk about acquisition reform, one of the things that we haven't talked about yet is life-cycle costs and sustainment, and that ends up being about two-thirds of the cost of the system. And it kind of gets overlooked, if you will, in the press and other areas.

But, I represent Robins Air Force Base, one of the three depots, and I would just like you, if you would, to speak to additional reforms in the acquisition process from the standpoint of sustainment planning, total life-cycle cost, and how our organic capabilities play into those areas as well as the ability to ramp up, if you will, when we need to.

Secretary KENDALL. I think we have probably got about the right balance of depot and contractor support, and it is something that I think has been stable for many, many years now. We are trying to improve the efficiency of both the depots and of contractor support.

One of the Better Buying Power sets of initiatives that you have in front of you is an area of contracting services, including maintenance. And we are also trying to invoke performance-based logistics as a way to incentivize industry or depots, for that matter, to do a better job.

It is a little harder in the government structure than it is with industry to do that sort of thing. But both have their role, and one of the important roles of the depots is their surge capability in case it is needed.

And increasingly, as we have an aging force, the depots are needed for overhaul and upgrades of our system. So I think, again, we have got the balance about right.

We are focused on sustainment. As you mentioned, it is something on the order of—50 to 70 percent of our life-cycle costs of our program are in the sustainment phase as opposed to the R&D [research and development] or the production phases, and we really have to go after that much more carefully than we have.

The development phase overruns tend to get all the public attention, but that is not where the money is. We really need to look where the money is and try to drive costs out there.

Mr. SCOTT. General.

General RAMSAY. Congressman, if I could just add very quickly, one of the things that this—that Congress has directed us to do, based on our request, is very, very, very early in the requirements process, as we begin to have a conversation about a gap with our acquisition professionals and look for resources, we do an analysis of alternatives that really gets at the life-cycle cost.

So we are trying to find out the knee in the curve and what the life-cycle cost is going to be from the moment we start bending metal until something goes to the boneyard, if you will, and look at that, you know, from head to toe.

Mr. SCOTT. Do you foresee Air Force depots competing for business from other branches in the future? Do you foresee us, if you will, allowing that work to transfer from Army to Air Force or move—

Secretary KENDALL. I would like to have the flexibility to do that sort of thing. And I am speaking totally off the cuff right now. But I would like to have, frankly, more public-private competition than we are allowed to have right now.

Competition is terrific. It drives out costs more effectively than anything else. And I think having competition among the services, even for service organizations, to do work like that would probably be healthy for us. I am not sure that everybody would be happy about that, but I think it would be healthy in terms of driving our costs.

Mr. SCOTT. Thank you.

I yield the remainder of my time, Mr. Chairman.

The CHAIRMAN. Thank the gentleman.

Ms. Stefanik.

Ms. STEFANIK. Thank you so much, Mr. Chairman.

Thank you, Mr. Kendall and General Ramsay, for your testimony today.

My question relates to clarifying the chain of command in the acquisition decisionmaking process.

What steps are you currently taking to clarify both authorities and improve the accountability of the decisionmakers within and throughout the chain of command?

Secretary KENDALL. The chain of command for acquisitions is pretty straightforward. For major programs, it runs from me, through the service acquisition executive, to the program executive officer, to the program manager. And I try to emphasize that it is one of the principles that we have pushed in all the Better Buying partnerships.

We try to set up our—this is relatively new, but we try to set up our program managers' tenure so that they come into a program before you start a phase and then their responsibility, once they have gotten approval to do the—their plan for that phase, is to execute that plan. So success is about successful execution of a plan that you submitted as opposed to getting something approved.

I try to hold our program managers and program executive officers accountable by recording their names on all of my decision documents as the people who brought the plan forward for approval that I am approving so that there is a permanent record of that.

We occasionally have to remove someone who is not performing effectively, and we have done that. We don't usually do it with a lot of fanfare. These are often people who have had fairly successful careers working in the military. And we are not trying to embarrass them, but we are trying to replace them with somebody who is going to be more effective in that particular role.

So I think we do do some things. I think what we have to work against, to some extent, is all of the stakeholders in our acquisitions programs who have a voice and often are senior in rank to the people involved in the actual management of the programs, and that can sometimes be a problem for us.

Ms. STEFANIK. Thank you.

I yield back.

The CHAIRMAN. Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman.

And thank you to our witnesses for your testimony here today.

Mr. Chairman, you and I have had a long history of working together on these important issues. I really appreciate this hearing and your continued attention to such an important national security matter.

General Ramsay, if I could start with you, I would like to learn a little more about the interplay that drives the JCIDS process.

And as you and your staff work through future battlespace scenarios and determine what is needed, how do you determine what technologies will be mature enough for inclusion in those discussions?

And could you elaborate as to how you draw in the subject matter experts to staff the Functional Capabilities Board.

And how do you ensure that they are able to have full visibility across the research and development enterprise with an appropriate appreciation for technological maturity levels?

And, similarly, how do your discussions feed into the concept of operations discussions that are in many ways just as critical?

I know I am throwing a lot at you there, but if you could help me by answering those questions.

General RAMSAY. Well, thank you, Congressman.

And I got to spend a year in Rhode Island and loved every minute of it in Naval War College. So I will open my comments sort of as a naval term, as an Air Force officer—

Mr. LANGEVIN. Please come back and visit us again soon.

General RAMSAY. I will. And I know you are digging out from a big snowstorm from the last 2 days.

It is an all-hands-on-deck, I guess is the best way I can talk about the process in a couple of the areas that you mention.

The JCIDS process that we have statutorily and then, by our own volition, evolved to over the last 6 years, I mentioned earlier that we now have certified requirements professionals that work within it. If you want to be in the requirements business in the Department, you have to be certified by Defense Acquisition University just like our great Acquisition Professional Corps.

The second piece of this is it is a completely transparent, collaborative, intertwined process. So when you look at the three big pillars of how we do the Department's business—resourcing, requirements, and acquisition—those bubbles all interact and everybody plays in the pool.

So I am a key figure, for example, in all three areas. So is the Vice Chairman. So is Mr. Kendall, who runs the Defense Acquisition Board. And the Vice Chairman runs the Joint Requirements Oversight Council; he is the chair of that.

As I said early on, we work with the acquisition community, with the intel community. Intel has the most play in developing the concept of operations, what is the future fight going to look like.

Then we work with the warfighters, especially the combatant commanders, about how they would like us to look at addressing that. That leads us into the technological piece that you mention.

And that is where acquisition professionals come in. That is where DARPA comes in. That is where things that Mr. Kendall is working to reach out to industry to find out, simply stated, what—what is the state of technological maturity across the board in the world today to bring that into defense. Some things we know about and some things we don't.

So if I could use one word to kind of capture all this, it is "intertwined." We are all linked at the hip from the very beginning of "I have a problem" to "I need a solution," and we work this together as teams across resources, requirements, and acquisition.

Mr. LANGEVIN. So let me ask you this: How do concerns about industrial base and niche capabilities where we are relying heavily on industry R&D dollars, such as directed energy, fit into your decisionmaking?

And, also, you briefly mentioned electronic warfare in your testimony, Mr. Kendall. How do we compare in that capability with our adversaries? And what would you need to be done to improve upon it?

Secretary KENDALL. I think the simple answer on electronic warfare is we have neglected that area for some time because we haven't been able to respond to some of the things the threats are doing.

I think we are behind right now. We are playing catch-up to some degree on that. We have some programs underway, next-generation jammer, for example, in the Navy. I would like to see those things accelerated where we can.

Again, we just had a good Defense Science Board study on this. It gives a lot of recommendations. Some of those have influenced our budget. Others are under further study and will probably influence next year's budget.

So I think that is an area where I think we need to focus a lot more attention going forward than we have in the past.

Mr. LANGEVIN. Do you want to add anything, General?

General RAMSAY. Yes, sir.

Just very quickly, one of the things that we—and you mentioned this, and that is the reason I want to touch upon it.

One of the things that we are very cognizant of as we work through our concept of operations is just what is out there for us to be able to do. And the industrial base is certainly something we watch.

But, really, Mr. Kendall and his team are the experts. And, obviously, as the budget has come down the last 5 years, we are very mindful of those industries out there that we cannot lose.

And I would like kind of Mr. Kendall to piggyback on that, if he would.

Secretary KENDALL. We cut R&D spending from a peak of over \$80 billion to about \$65 billion, \$63 billion. That is a pretty dramatic drawdown.

And I think of that, frankly, as letting the engineers that are part of our force structure go—a lot of them go. And when those people leave defense industry, they are probably not coming back. And we consciously look at this every year as we go through the budget process.

We have—the Deputy Secretary chairs a meeting where he looks at the health of industry consciously to make sure we are not doing anything there that is going to do irreparable harm.

And we have, I think, over the last few years in each case made some adjustments in our budget because of industrial base concerns.

That said, at the end of the day, the resources are what they are. And if you are going to cut your amount of funding in R&D by a large amount of money, then you are going to cut a large amount of your capacity to do that kind of work, and you have to rebuild that.

I mentioned the Aerospace Innovation Initiative earlier. One of the reasons I am doing that—one of the reasons the Department is doing that is to preserve the design teams that can give us the next generation of capability in that area. Because once those design teams go away, we have lost them and it is very hard to get them back.

In very specialized areas, like you mentioned electronic warfare, that is a very special skill set and you can't develop somebody who is an expert at that overnight. It takes time. And you get that expertise by working on programs, by developing new cutting-edge things.

Mr. LANGEVIN. And I know my time is expired.

But I share that concern. And I have heard directly from industry that, given the significant drawdown in R&D, that they are struggling to survive in many fields and they are making business decisions right now that—they are—basically, anyways, may be forced to close their doors if the R&D funding isn't there to continue to keep the pipeline alive.

So, thank you, Mr. Chairman. I yield back.

I have some other questions for the record that I would like to submit. It would be helpful if you could provide some answers. Thank you.

The CHAIRMAN. No, I appreciate the gentleman raising that issue.

I think some of the most difficult challenges we face are to what extent we continue to fund, say, a supply line just to keep the industrial base engaged, even if we don't necessarily need at that moment what they produce.

And you mentioned the R&D, losing the engineers. I think it is—together, those are some of the most difficult challenges we have before us.

I want to get back, actually, to part of what Mr. Langevin was asking about at the beginning and then other members have asked about as well, General, on the requirements system. I mean, you have described, you know, the way it is supposed to work and all the interactions and so forth.

And, yet, as was pointed out earlier, one of the suggestions we have heard from some of our conversations with acquisition people is we need to take the time up front to really investigate the technology, understand what we are dealing with.

That helps procurements go quicker. One hears always that part of what happens with programs that don't perform well is requirements creep, that, you know, it changes over time and so forth.

So my question is: Especially from the military standpoint, how do we have the discipline in the system to invest the extra time up front, to not have the requirements creep when, you know, there is the demands to get it there now?

You know, I know there is the JROC. Lots of committees, you know, discuss this. But, really, when it boils down to how does this—where is the discipline in the system to do what has been suggested?

General RAMSAY. Chairman, those are both great questions, both great issues.

The process that we have laid in place, again, thanks to your help in the last 4 years, I think really has put us on the path to getting at the discipline up front. More and more of our programs are really broken up, torn apart, and built back up long before we ever—as I said earlier, getting into the business of bending metal.

In terms of requirement creep, I would offer there are sort of two ways—there is two different paths in that. One of them is there is requirements creep that is caused sometimes by the assessment of what the future war fights are going to be because it takes a while to get these weapon systems through the development process and into production and the world changes and we have critical intelligence breaches.

So, in some cases, we have to evolve the requirement because we don't want to field a weapons system to fill a capability gap where the gap—the weapon system is not going to serve the needs of the future.

But there is another side of that which, I would offer, we have had a lot of success at, again, thanks to your committee, which is we are asking program managers and sponsors, namely, the services and the combatant commands, that, when possible, if they find out that a weapon system needs to have its performance parameters reduced because we are way beyond the knee in the curve in the cost, in other words, we can deliver something that is a little bit less capable, but at much less cost, that still meets the warfighters' needs, we are getting really good at that.

So, Admiral Winnefeld and Mr. Kendall sent a memo out about 2 years ago which encouraged, for the first time, sponsors and programs managers to bring requirements back to the process.

So we have descope a lot of programs to get at that to find that knee in the curve in terms of life-cycle cost. Delivering things that actually the warfighters need today, we can get them there quicker and we can do it a lot cheaper. So we are kind of watching both sides of that.

The intelligence piece I mentioned a minute ago is something rather new, and it gets back to the pace of technological change of some of our adversaries, that we have to take a step back and go, "We need to rethink this and probably—we can call it requirements creep, but it is really about meeting the needs of the future." So we are looking at both sides of the coin, if you will.

The CHAIRMAN. No. And I appreciate you raised that because that is a very fair point. If there are leaks, for example, that disclose key technologies, then we have got to deal with that situation. We can't stick our heads in the sand.

But I will just say, you know, part of what I think this committee needs to do is to help provide some of that discipline, too. When the budget requests come before us, we need to ask those questions. And maybe we can reinforce some of the efforts that you are talking about over the last 3 or 4 years.

Mr. Kendall, another issue that people talk about quite a bit is—and you mentioned it earlier—prototyping and experimentation.

And one way it has been described is you get into a Catch-22. If you don't have requirements for something, then there is really no place to go with it, even if you have got a great idea. And, yet, if you can't at least move a great idea some distance down the process, you can't ever do anything with it. It just kind of languishes there.

Some people have even suggested maybe we need to look at a prototype experimentation fund—expanded fund that you would have and let the services compete for dollars or for ideas that they could flesh out.

I guess, kind of in a general way, are there things that we could do together to help ideas or to learn from them to have an increased level of prototyping and experimentation?

Secretary KENDALL. We do do a degree of that now, and we are relatively free on the science and technology part of our activities to do that without formal requirements, which is a good way to do it.

We have a program that isn't all that large now in the budget. It used to be larger. It is called Joint Capability Technology Demonstration programs, which has done a number of reasonably small programs and historically did larger ones, and we are kind of moving slowly back towards more significant demonstrations there.

The Aerospace Innovation Initiative that I talked about is a fairly large-scale demonstration program. It is a prototyping program without a firm requirement. It is going to explore the possible, basically, and it will allow us to have people who set requirements make much better informed decisions as we go down the road and understand what the art of the possible really is.

So we do have some things. We also have foreign comparative tests, which allow us to look at foreign systems and see how they might fit into our things on somewhat of an experimental basis.

Be willing to have a dialogue with you about whether there is an adequate number of resources in that area or not. It is a hard area when budgets are tight to peel out resources from other things that are being shortchanged already to do things which aren't definitely going to lead to a fielded product, but it is an important thing for us to do at least to some degree.

The CHAIRMAN. Okay.

Secretary KENDALL. If I could, Mr. Chairman, I wanted to mention something because I think it is important to call at least to your attention.

I have left with the committee a report that was done by Institute for Defense Analyses, and it has to do with the subject of tight budgets and not tight budgets. It is one of the most, I think, profound pieces of work, important pieces of work, trying to analyze cause and effect and correlations in our acquisition system over decades.

And what—this analysis, which was done by the former head of the CAIG—Cost Analysis Independent Group—and what is now CAPE [Cost Assessment and Program Evaluation], looked at major programs and the cost growth in those major programs over several decades and correlated that with two things. One was acquisition policy, and the other was whether budgets are tight or loose.

There was no correlation to the acquisition policy changes. Nothing we did seemed to make any difference in the performance of programs. Tight budgets and loose budgets had a major impact, and the numbers are pretty shocking.

In periods in which budgets are relatively loose and people can manage with some degree of cushion, if you will, in their planning, our overruns and production costs are on the order of 10 percent. When budgets are tight, they are on the order of 30 percent. It makes a huge difference.

And I thought this was one of the more profound things I have seen. I wanted to call it to your attention. We are in a tight budget era now. And what this is telling me is that behaviors change in a way which leads to major cost overruns when we are in tight budgets.

And we can talk about what those might be. One of them is trying to hang on to things we really can't afford with the budgets that we have and cram more into the budget than it will really support and pretend for whatever reason that costs are going to be lower than they are actually going to be. And, frankly, I have seen some evidence of that sort of thing.

Industry is hungrier in times like this and it will talk itself into bidding more aggressively in order to win the business because it is all the business there is to compete for.

So there are a number of things that may come together to cause this impact, but I wanted to point it out to the chairman because, as we have looked for ways to improve defense acquisition, this is not one of the things we have focused on.

We looked at a lot of other things, but this has an impact that is far beyond any of the other things we have done. And I think it is important to note that.

The CHAIRMAN. Well, I appreciate you mentioning that.

I have not had a chance to read the study yet, although I did see a summary of it and, like you, I started thinking about "Okay. What are the reasons for that? What are the behaviors?"

And maybe one of them is just what we were talking about. There is—with tight budgets, there—it is harder to put the resources in up front to get the requirements and the prototyping done. So, in effect, it takes more money and more time because you don't put that initial investment into it.

Secretary KENDALL. Another impact is that we tend to stretch out programs. We stretch out the development program. And Crusader was mentioned. Comanche is another example of this where programs, because of resource constraints, were stretched out in development for years and years and years.

And I am not quite sure exactly how that impacts unit cost. Part of it is the technologies are changing. So we have to redesign for them and you end up with more costly technologies.

Another part is whether you can hold your design team together throughout or you end up making changes because of that, as people change on the design teams.

I think there are a number of things here we have to look at more deeply, but I think it is a very important result, nevertheless.

The CHAIRMAN. Okay. Good point. And we will join you in looking and trying to understand that result.

I guess the last question I have is—I want to get back to the legislative proposals that you submitted.

I am sure you have run into a lot of the same reactions that I have when talking about improving the acquisition system. It is a little bit of eye-rolling and “Oh, I have heard that story before.” And there is some skepticism, concern, that you all are just going to do something that looks like you are doing something, but it doesn’t really matter.

So my bottom-line question to you is—the legislative proposals that you have offered us, we are going to have to take time to look at them carefully. But if they were enacted, would it matter? Would it significantly help the current situation?

Secretary KENDALL. The answer is yes. And the reason that the answer is yes is that it would give our managers back their most precious—it would give our managers back their most precious asset, which is time.

If we can remove bureaucratic burdens on our program managers so they can focus on the things that really matter, they will get better performance scores.

And I think, in general—I use the term “acquisition improvement” as opposed to “acquisition reform” because, to me, “reform” implies that there is some big thing we could do which is going to make a huge difference. I don’t think that is the case.

I think what we have to do is attack our problems on many fronts and make incremental progress on many fronts, learn from our experience and then adopt new things as we understand the impact of the things we have done.

And that is why we have emphasized a continuous process improvement approach in the Better Buying Power initiatives over the last several years. And I think that is the right approach.

I think we will make incremental progress on a lot of fronts. In the aggregate, I think it is going to make a big difference. But you have to be willing to attack the details on a lot of different aspects of acquisition.

At the end of the day, a great deal of it is about not putting rules in place that constrain people, but getting people in a position where they can make better decisions and do the right thing and then have the institutional support to execute the right thing and do it successfully.

The CHAIRMAN. Okay. Well, I completely agree.

There are no magic bullets here. It does require continuous effort. And so I will try to use the term “acquisition improvement” as well and follow your lead.

Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman. I appreciate the extra time.

So I just have a couple of subject areas I wanted to touch on. And in some ways you have touched on them already, but maybe to focus them a little more.

With a technology like directed energy or a family of systems like unmanned undersea vehicles, there are so many variables that affect the demand signal for its development and deployment, things like amount and level of R&D funding, the CONOPS [concept of operations], platform availability, specific characteristics of the weapon systems and adversary systems, familiarity of the service with the capabilities in question, and the creation of a demand signal, affordability of various options, and so on.

So could you walk us through a little further how those feedback loops work. And how does your staff make the decision to turn one dial versus another? And how does intelligence—and I know you have touched on that already, but how does intelligence about potential adversaries feed into that?

Secretary KENDALL. It is a great question. And I think at the heart of it is our ability to do something different when it is the right thing to do, or not.

What we are good at, I think, in the Department is buying the next generation of the thing that we already have, the next-generation fighter plane, the next-generation armored vehicle, the next-generation surface combatant, whatever. What we are not so good at is recognizing when we have to fundamentally change direction.

Now, if you look at the offset strategies that Secretary Work talks about, one is use of tactical nuclear weapons in the 1950s, which was made available because of the fact that nuclear weapons had been developed.

We were in a situation where we were looking at very large-scale forces on the Soviet side and we needed something to counter that, and it was sort of an obvious thing that we could do.

The precision weapons offset strategy that started in 1970s and we really demonstrated in the 1990s was such an obvious improvement in efficiency on the battlefield that it was sort of an easy one to do.

Directed energy is one that we have talked about forever, but we have never been able to get the technology quite to where it is kind of over that hurdle of being operationally useful enough.

The Navy is doing a demonstration project right now with a laser on a ship, which is getting up closer to an operational capability, but is not really where you would quite like to be.

So those are technologies that moved forward very incrementally over time, but haven't quite gotten to where we are ready.

I think, in the case of directed energy, if the performance was there, the—the utility of that is so obvious, if you can really do it effectively, that it is easy to embrace that.

Another one that is similar is railguns—electromagnetic launch railguns—which we have been working on for decades, also. And if you could get that technology, which has advanced quite a bit. One of the problems that I mentioned earlier was defensive air bases, for example, or defensive ships, high-value assets.

If you can get to a one-shot-one-kill capability there through either of those two means, that is a huge improvement in capability. I think it is one that is fairly obvious to see.

Others—the use of unmanned systems and undersea environment you talked about—I think we have to think more carefully about what the ops concept is and how we would use them and think about the operation end to end. So it is not as obvious what you would do or how we would use that technology if you got there.

And we have an effort going on now at the Department called the “Long Range Research and Development Planning Program,” which is being led by our chief system engineer. It mirrors a study that was done in the 1970s with a similar name that led to the investments that gave us the precision munitions and the other things that we use in the so-called second offset strategy.

And one of the things that that team that is working now is trying to do is identify the things we should be investing in that would make a big difference on the battlefield of the future and perhaps identify a third offset strategy that we could work our way towards.

It isn’t quite—to me, at least, it isn’t quite as clear a path as some of the earlier two—the earlier two that I mentioned were.

And I would also point out that all offset strategies are not successful. The Germans did some kind of an offset strategy with submarines in World War II, which came close, but it didn’t actually prevail at the time.

Any real innovation in military operational capability tends to be some form of an offset strategy, and getting it right, once you embrace that, is important.

Now, it is easier to do things where you can integrate the new capability into the way you already do business. So in the case of railguns or electromagnetic launch or directed energy, I already do air defense systems. So it is a different kind of an air defense system, if you will.

Other capabilities, such as some of the disaggregated we talked about earlier, require you to completely stop what you are doing and do something different. Those are the hard decisions for the Department to make. I think they are hard for any military institution to make. And identifying them and having the courage to go forward I think is something that we are going to be challenged by.

General RAMSAY. I completely agree with Mr. Kendall’s comments.

I would just offer—I think one term that Mr. Kendall didn’t use that we talk about a lot is we are looking at the—if you look at our budgets in the last 3 or 4 years, as they have gone down, frankly, we are struggling with this balance of the fight tonight and what is good enough for now versus investing in the future.

And part of investing in the future is: Where are the game-changers? And that is this third technological offset strategy. That really has dominated our conversations across the Department, but especially in the resourcing and requirements and acquisition world, looking for those game-changers. That is part of what LRRDP [Long Range Research and Development Plan] does in the whole Innovation Initiative, and that is a, again, an all-hands-on-deck process right now.

Mr. LANGEVIN. Well, you know, I just hope that, when the game-changing technology does come on the scene and it is mature

enough, that we don't have this, you know, institutional resistance to then being able to adopt it, wanting to hold on to legacy systems.

Directed energy is a particular concern of mine, that, you know, when it is there, are we going to be able to adopt it quick enough. You know, Mr. Secretary, you are a bit, maybe, more optimistic than I would be when you talk about the utility of it is so obvious.

But I also get concerned about the institutional resistance to adopting new technologies quickly when we are so used to, you know, the missiles or, you know, things like Phalanx that, you know, would be used as the kind of kinetic defenses that lasers could be much more effective at once we employ them. But I understand that the technology does have a little ways to go still.

But the last thing I had is: Do you believe that the current procurement process is so long that the technology becomes obsolete by the time it reaches the warfighter?

And how do we avoid these issues in areas such as cyber where procurement timelines are so mismatched with budget timelines?

Secretary KENDALL. We understand that—well, first of all, when we do a very complicated weapon system, it is going to take some time. It is going to take some time to do the design and then to do all the testing of all the features associated with that system.

And during that time some technologies are going to move forward and the threats are going to move forward. So you have to build into your design, through what we call modular designs or through open systems architectures, the ability to do upgrades to that initial system as you go along and sometimes to make changes in progress if the threat dictates that.

If you look at—I am going to use the F-35 as an example. We have gone through a series of technology insertions on the F-35 already in terms of processing capability. There are probably more of those in the future.

We have asked for—and we had some difficulty with the Congress on this, but I think we have worked our way past that—funds to start the follow-on development for the electronic protection systems, for example, that we are going to need in the future after the initial fielding of the full capability.

So you have to design in the flexibility and the process and then secure the funding in a phased way to improve your products over time and to take account for the fact that technologies and threats are both going to be changing as you are going through the product life cycle.

Mr. LANGEVIN. Very good.

Well, thank you both for your testimony and your patience.

And, Mr. Chairman, thank you for the extra time. And I yield back.

The CHAIRMAN. No. I appreciate the gentleman's questions and the issues he raises.

Thank you both for being here.

Mr. Kendall, as we work our way through the proposals that you have made, as we discuss with you ideas that we have and from others, I hope we can keep this as a continuous process, as you describe, so another package maybe next year and another one the year after that and another one the year after that, because it is going to take that continued persistence to get at the many com-

plex issues that you raise. That is certainly going to be a priority of this committee.

And I appreciate the time and effort and the cooperation that you and your folks have put into it so far. So I look forward to that.

Secretary KENDALL. Thank you, sir. Same here.

The CHAIRMAN. Yes. Again, thank you all for being here.

And, with that, the hearing stands adjourned.

[Whereupon, at 11:44 a.m., the committee was adjourned.]

A P P E N D I X

JANUARY 28, 2015

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

JANUARY 28, 2015

Opening Statement of Chairman William M. “Mac” Thornberry
HEARING ON
A Case for Reform: Improving DOD’s Ability to Respond to the Pace of
Technological Change
January 28, 2015

I am pleased to welcome our Members, witnesses, and guests to the first formal hearing for the House Armed Services Committee in the 114th Congress. The subject is technology superiority – how the U.S. is doing and how we can ensure that we have technological edge for years to come.

A fundamental obligation of Congress under the Constitution is to “raise and support,” “provide and maintain” military forces capability of defending the country. The responsibility of meeting that obligation falls primarily on this Committee.

Doing so in these times, however, is challenging for several reasons:

1. We face an enormous array of serious, complex threats for which we must be prepared. Each of them requires certain preparations and technologies.
2. The pace of technological change is increasing at an astonishing rate. It is an enormous challenge just to keep up.
3. Enemies and potential competitors are working every day to exploit vulnerabilities in our capabilities. That includes developing technologies to offset areas of American military strength.

In addition, we are challenged by our own system, which is too slow, too cumbersome, too wasteful, and too frustrating for those in it and all of those who depend on it.

A big part of the reason that defense reform, including but not limited to acquisition reform, will be a major part of this Committee’s agenda is to improve the ability of the Department to keep up with this pace of technological change.

Our military doctrine has long depended on technological superiority. But it is clear that potential adversaries are hitting us at the seams of our high-tech edge. The consequences of a relatively weaker America will affect every American.

If we cannot keep up, we not have the military capability we need when we need it and the danger to our military personnel will be increased.

Yesterday, we received a classified briefing on these issues, and on Monday, the Committee had an informal discussion with the chief acquisition executives for

each of the military services. Today, we are pleased to welcome Undersecretary of Defense Frank Kendall, who has been leading the Department's work in this area, as well as General Ramsay, the Joint Staff's Director of Force Structure, Resources and Assessment (J8).

The key issue before us is this: What should we in the Congress do to ensure that American has technological superiority so that we have the military capability that the nation needs and the times demand?

Testimony

Before the House Committee on Armed Services

Witness Statement of

HON Frank Kendall

Under Secretary of Defense

Acquisition, Technology & Logistics

January 28, 2015

Chairman Thornberry, Ranking Member Smith and distinguished members of the committee, I appreciate the opportunity to testify today. I applaud the steps you are taking to improve defense acquisition. I look forward to sharing with you some ideas for improvement, which I hope you will consider, and also some actions I am taking within existing authorities and constraints with the same goal: get more for the taxpayer and the warfighter from the resources the Congress provides to the Department. I would like begin by discussing the reason it is so crucial for our acquisition system to be more productive; that is the clear risk we face today of losing our military technological superiority over potential adversaries. Controlling cost and increasing efficiency and productivity are always important, and the Department remains focused on improvements in these areas. My first responsibility, however, is to ensure the United States has and will continue to have dominant military capabilities relative to any potential adversary. At this time, as I have testified before to this Committee, I am deeply concerned about the adverse trends I see in our military technological superiority.

THE RISK OF LOSING MILITARY TECHNOLOGICAL SUPERIORITY

Each morning, I start my day reading the latest intelligence, including technical intelligence on foreign weapon systems. I've been doing this for almost five years now, since March of 2010. It took me only a few weeks from the time I came back into government after a 15 year absence to realize that we have a serious problem. Some countries, China particularly, but also Russia and others, are clearly developing sophisticated weapons designed to defeat our power-projection forces. Even if war with the U.S. is unlikely or unintended, it is quite obvious to me that the foreign investments I see in military modernization have the objective of enabling the countries concerned to deter and defeat a regional intervention by the U.S. military.

Over the past few decades, the U.S. and our allies have enjoyed a military capability advantage over any potential adversary. The military capabilities of precision weapons, stealth, wide area surveillance, and networked forces emerged from what Deputy Secretary Work describes as a third "offset strategy" that had its origins in the 1970s. This mix of capabilities was designed to deal with the overwhelming number of Warsaw Pact mechanized forces. The First Gulf War put this suite of technologies and the associated operational concepts on display for the world to observe and study. The First Gulf War also marked the beginning of a period of American military dominance that has lasted about a quarter of a century and served us well in several conflicts. We used the same capabilities, with some notable enhancements, in Serbia, Afghanistan, Libya and Iraq. It has been a good run, but the game isn't one sided, and all

military advantages based on technology are temporary. Sequestration level budgets would of course significantly accelerate the erosion of our military advantage.

When I left the Pentagon in 1994, the intelligence estimates suggested that, while China might be a concern in the future because of its accelerating economic growth, it would take 15 to 20 years for China to become a peer competitor. It is now 20 years later and the intelligence estimates were accurate. China has developed and fielded advanced weapons designed to defeat U.S. power projection forces. Many more are in development. These systems include a range of capabilities but foremost among them are accurate and sophisticated cruise and ballistic missiles designed to attack high value assets; particularly the aircraft carriers and airfields that we depend upon for power projection. These missiles, fielded in large numbers and coupled with advanced electronic warfare (EW) systems, modern air-to-air missiles, extensive counter-space capabilities, improved undersea warfare capabilities, fifth generation fighters, and offensive cyber weapons pose a serious and growing threat.

China's modernization program is the most ambitious, but Russia and others such as Iran are also fielding precision missiles and other capabilities that threaten our power projection capabilities. Taken together, the foreign modernization programs that I refer to are clearly designed to counter American power projection forces and to ensure the U.S. does not interfere in areas similar to what Russia calls "the near abroad" and China refers to as inside "the first island chain." Even if our relationships with these states remain peaceful and military confrontation with them never occurs, the capabilities I am concerned about will inevitably proliferate to other states where the likelihood of conflict may be greater.

The combined impact of reduced budgets, even without sequestration, on-going combat operations, and our global commitments significantly impact US investment in new technology and weapon systems. The rise of foreign capability, coupled with the overall decline in U.S. research and development investments, is jeopardizing our technological superiority. The Defense Department has to balance among many competing requirements and the President's Budget will, as it always has, reflect the best balance of force structure, readiness, and modernization available. My responsibility is to use the available resources as efficiently and effectively as possible to delivery capability to our warfighters. The remainder of this statement will address the steps I am taking to accomplish this and some recommendations that the Administration like to work with the Committee to see enacted.

IMPROVING DEFENSE ACQUISITION

We all agree that the Department can be smarter in what we procure and how we procure it. We all want to reduce schedule slippages, curb cost growth and get better performance. After over 40 years of various cycles of acquisition reform, I've concluded that there is no single reform or even package of reforms that will dramatically change our outcomes. A recent study led by Dr. David McNichol at IDA found that the single biggest statistical correlator to production cost increases in weapons systems was the budget climate (tight or loose money) at the time the program was first baselined.¹ Program cost overruns are much more pronounced if the program was initiated during periods of "tight" money, such as we are currently experiencing. Everything else we've ever done as "acquisition reform" seems to have had almost no discernable statistical impact on production cost growth. For the last few years, starting when I was then Under Secretary Carter's Principal Deputy, we've taken the approach of "continuous improvement." Whatever we chose to call it, the Department is very willing to work with the Congress and this Committee on anything that will reduce cost, speed delivery, or enhance the performance of the equipment and services we acquire for our warfighters.

The Department's continuous improvement approach has been formulated in a series of initiatives we have called "Better Buying Power." There are three versions of Better Buying Power, with each one building on and learning from the previous versions. The evolution from BBP 1.0 to 2.0 to 3.0 was based on the premise that emphasis would shift as initiatives were put in place, experience was accumulated, data was collected and analyzed, and conditions changed. Each iteration of BBP is characterized by strong continuity with previous iterations. In fact, each includes "core" features that would be in any BBP version that I would implement; these include an emphasis on competition, incentives linking profit to performance, cost consciousness demonstrated by active cost controls, and building professionalism in the acquisition workforce. BBP 3.0, which was announced in fall 2014 and is currently being finalized, maintains that approach with a great deal of continuity from BBP 2.0 but also a shift in emphasis toward achieving dominant capabilities through innovation and technical excellence.

One of the dominant characteristics of defense acquisition is its scope and complexity. There are no simple solutions to all the myriad problems acquisition professionals have to solve. There is no short "rule set" that tells us all we need to know – it is all about hard work,

¹ McNicol, David L., and Linda Wu, *Evidence on the Effect of DoD Acquisition Policy and Process On Cost Growth of Major Defense Acquisition Programs*, Institute for Defense Analyses, Paper P-5126, September 2014.
<http://www.dtic.mil/dtic/tr/fulltext/u2/a609472.pdf>

professionalism, and continuous improvement based on data and analysis of past experience. I have submitted the BBP 3.0 “white paper,” which describes BBP 3.0 in more detail for the record.² I’m also providing the second annual report on the *Performance of the Defense Acquisition System*, which was published last year.³ This report provides a compendium of data on trends in DOD acquisition performance. The following is a brief summary of the intent behind the draft BBP 3.0 initiatives, which I expect to finalize with implementing instructions in February. There are seven major areas of emphasis with most having a number of individual initiatives associated with the area.

Achieve Affordable Programs. All versions of BBP have addressed the problem the Department has of starting unaffordable programs that ultimately have to be canceled or curtailed. The Department continues to set and enforce affordability caps on all major programs. We use this tool, affordability caps, as a forcing function for capital investment analysis to determine how much capability can reasonably be afforded in future budgets – *before* requirements are established and the program is initiated. Affordability analysis is used to establish production and sustainment affordability caps. Affordability caps are of little value unless they are enforced, and we will continue to track our performance against the caps we have established to ensure compliance.

Achieve Dominant Capabilities While Controlling Life Cycle Costs. This is the next BBP major category and is in part a continuation of a core tenant within BBP: our managers should be actively taking steps to control cost at all times. The new or modified initiatives in BBP 3.0 address: (1) building stronger partnerships between acquisition, requirements and intelligence communities; (2) anticipating and planning for responsive and emerging threats; and (3) institutionalizing a long range research and development program plan (LRRDPP) for the Department. The LRRDPP, based on a similar effort in the 1970s, is one part of the Department’s effort led by Deputy Secretary Work to improve innovation across the DOD and to develop a new “offset strategy.” The LRRDPP, which is being led by the DASD (Systems Engineering), will help the Department identify and prioritize the most promising suite of innovative technologies, associated systems and operational concepts that will lead to dominant military capabilities in key war fighting areas.

² Frank Kendall, *Better Buying Power 3.0: White Paper*, Office of the Under Secretary of Defense, Acquisition, Technology and Logistics, September 19, 2014.

http://www.acq.osd.mil/fo/docs/Better_Buying_Power_30-091914.pdf

³ Office of the Under Secretary of Defense, Acquisition, Technology and Logistics, June 13, 2014.
<http://www.acq.osd.mil/fo/docs/Performance-of-Defense-Acquisition-System-2014.pdf>

Incentivize Productivity in Industry and Government. We will continue to align profitability more tightly with Department goals. The data shows that the Department does a reasonably good job of aligning profit with performance, but there is still room for improvement. The data shows clearly that the way we structure our business deals does affect how industry performs. Our goal is a defense industrial base that is lean, competitive, innovative and productive. Profit is an effective tool to achieve these ends, when we use it appropriately. Striking the right balance is key; profit is not optional for any business. We want to provide incentives that are effective and fair and we are happy to see firms that perform well for the Department do well financially. New under BBP 3.0 are initiatives focused on: (1) removing barriers to commercial technology utilization, (2) improving the return on investment in DOD laboratories, and (3) increasing the productivity of industry Independent Research and Development (IR&D) and Contracted Research and Development (CR&D). Technological superiority depends in part on our ability get as much as we can from each of these multi-billion dollar investments.

Incentivize Innovation in Industry and Government. This set of initiatives emphasizes how we stimulate creativity and the willingness to reach beyond minimum requirements. Our intent is to support advancing the state of the art, preserve our critical design teams, and reward out of the box thinking and risk taking. For example, increasing the use of effective prototyping and experimentation not only allows us to advance technology and explore innovative operational concepts, it also preserves a vital part of the industrial base, our integrated product design teams. The pending budget submission will include an "Aerospace Innovation Initiative," a new DARPA led program in partnership with the Navy and Air Force, intended to develop the technologies and address the risks associated with the air dominance platforms that will follow the F-35, as well as other advanced aeronautical challenges. Other initiatives in this area include providing draft technical requirements to industry as early as possible and providing clear "best value" definitions (in monetary terms) so industry can propose smartly and the government can choose wisely. Industry and government must work effectively together to advance the state of the art; these initiatives are intended to further that goal.

Eliminate Unproductive Processes and Bureaucracy; this is a constant struggle and it never goes away. We have made some progress here, but there is much more to be done. A lot of the bureaucracy imposed comes from people who are not in the chain of command but who are stakeholders of some type who want to protect what we call in the Pentagon their "equities" or institutional interests. While a valid and reasonable motivation, the diversity and density of

stakeholders imposes huge burden on the chain of command responsible for program execution and delivering capability. Later in this statement I will address a legislative initiative we have been working with the Congress and this Committee, which we hope will address some of the overhead imposed on our Program Managers through statutory requirements that have built up over the years. Assistant Secretary for Acquisition McFarland has also been working closely with industry on some of the requirements we place on our contractors, and we hope to make some positive changes in this area also.

Promoting Effective Competition; competition is another core component of any BBP version. Competition is the most effective tool we have to control cost. In the absence of direct competition, anything that creates a “competitive environment” has value to the Department. When direct competition at the product level is not economically viable, then alternative means of introducing competitive pressure or direct competition at lower levels should be pursued.

A new initiative in BBP 3.0, improving technology search and outreach in global markets, recognizes that competitive sources of both technology and products are increasingly located outside the U.S. We have many global allies, friends, and trading partners who share our values and can assist us in acquiring needed defense products. For example, the Defense Technology and Trade Initiative between the US and India furthers our strategic goals, but it also opens up possibilities for new and competitive sources of products to the Department. With our resource constraints we cannot afford to develop unique US systems for every need. Where adequate products are available from our international partners we should welcome and encourage broad competition.

Improving Tradecraft in the Acquisition of Services. We spend the same amount of money on services as we do products. Recognizing this, we have done much during the last few years to improve the acquisition of contracted services. Nevertheless this will remain a core part of BBP indefinitely. It represents the area in which I believe the greatest efficiency improvements are still possible. Initiatives like increasing small business participation, including more effective use of market research; and improving requirements definition for contracted services will continue. New in this version of BBP is a focus on improving the effectiveness and productivity of contracted engineering, technical and support services.

Improving the Professionalism of the Total Acquisition Workforce. This last category was added in BBP 2.0. I am proud of our government workforce and what it has accomplished for our country, our taxpayers, and our warfighters; we have a very professional workforce. Our

acquisition professionals must be able to think critically on many levels, integrate inputs from many perspectives, balance competing needs, make sound business and technical decisions, and satisfy many stakeholders and customers. Due in no small part to these professionals' efforts we have dominated in every conflict we have entered. I am extremely proud of the acquisition workforce's resilience under constant criticism, pay freezes, furloughs, concerns about reductions in staff size, the possibility of being affected by a Base Realignment and Closure (BRAC) round, and an uncertain budget climate. The workforce constantly strives for higher performance. But the mark of a true professional is not complacency with current levels of performance; it is the recognition that there is always more to learn and improvement is always possible. BBP 3.0 specifically focuses on strengthening our technical expertise and it emphasizes the particular importance of qualified technical leadership for development programs.

We cannot be intelligent customers who insist on high levels of performance and know how to get the most out of industry, if we don't have the right technical capabilities inside the government. Effective risk management – necessary if we are to overcome the risks that must be taken to acquire new dominant capabilities – is a fundamental skill we need to improve. As a result we are looking for ways to strengthen organic engineering capabilities. Part of the equation may be more exchanges with industry for our technical people, more careful management of career fields and certainly emphasizing the importance of technical people to our success. We are looking for more ideas in this area from all stakeholders including the Congress.

In summary, BBP 3.0 does not end our focus on controlling costs, critical thinking and sound professional management. It shifts our emphasis slightly toward the products we produce for our customers: the warfighters who depend on us to give them dominant capabilities on the battlefields of the future. BBP 3.0 continues strengthening our culture of cost consciousness, professionalism and technical excellence.

INFORMING POLICIES THROUGH DATA AND ANALYSIS

Data-driven performance analysis is now being used to ensure we understand how well we perform and whether policy changes actually produce the results we seek. One major way we achieve this goal is through the annual report I instituted two years ago, called the *Performance of the Defense Acquisition System*.⁴ In addition to providing objective, transparent

⁴ Office of the Under Secretary of Defense, Acquisition, Technology and Logistics, June 13, 2014. <http://www.acq.osd.mil/fo/docs/Performance-of-Defense-Acquisition-System-2014.pdf>

views of our performance, we are producing actionable insights that inform policy making. At times, these insights are not what conventional wisdom may have led us to expect prior to looking into the actual results.

For example, in our 2013 and 2014 reports we found the assertion that fixed-price contracts produce better cost and schedule performance at better prices to the government was not accurate. Fixed-price contracts do not ensure the lowest final price for all situations. Instead, the most important imperative we found is that the government must match the contract type and incentive structure to the level of risk so that we effectively motivate contractors to perform at their best while minimizing prices. For example, if risks are high when acquiring a weapon system, firm-fixed-price contracts will result in higher prices because contractors bid higher to insure against these risks; if the risks do not materialize, we are still stuck paying high fixed prices. Conversely, cost-plus-incentive-fee and fixed-price-incentive contracts provide effective incentives to control cost risks, such as in development, while ensuring we share in any savings.

This result indicates that the existing statute requiring a written determination by the Milestone Decision Authority before cost-type contracts can be employed on development programs⁵ places the emphasis in the wrong area. Instead of emphasizing the use of fixed-price vehicles, we should be emphasizing the use of formula-type incentive contracting on development programs. The risk of taking a substantial loss or no profit on a strongly incentivized cost-plus-incentive-fee or fixed-price-incentive contract is a motivation for better performance. The risk of going bankrupt on a risky firm-fixed-price contract (especially in development) is a deterrent to doing business with the Defense Department. We need to get this right, and contracts with formulaic incentives strike the right balance on most development programs.

This result also supports the current guidance to increase the use of fixed-price-incentive contracting on production contracts. Such contracts control prices about as well as firm-fixed-price contracts but with lower median margins. They also provide timely insights into actual costs and let the government share in the cost savings we are incentivizing.

As this short description illustrates, this is complicated. There is no single, best solution for every situation, and those situations differ even more widely between acquisitions of different types of goods and services. We need the flexibility to assess each situation and apply the right tools to motivate the best performance at the lowest final price.

⁵ FY2007 NDAA, Section 818

WHERE CONGRESS CAN HELP

Repeal Sequestration. Sequestration may very well return in Fiscal Year 2016 – and, even if it does not, the continuing threat of sequestration makes sound planning all but impossible. The debate of how much we need to spend for our military in order to have peace and stability in the world is a debate worth having. Controlling the deficit is a worthwhile goal. The sequestration mechanism is not an appropriate tool to achieve either of these ends and just the threat of sequestration is doing great harm to the Department of Defense.

Provide requested funding and needed cost saving steps. We are experiencing a period of tight defense budgets made worse by the Congress' reluctance to fund proposed cost saving measures. The record on how tight budget climates affect acquisition results is sobering.⁶ Historically, out of 151 Major Defense Acquisition Programs (MDAPs) since 1970, 40 showed quantity-adjusted Program Acquisition Unit Cost (PAUC) growth of at least 50 percent. Shockingly, fully 36 of those 40 programs (90%) were established (i.e., passed milestone B or the equivalent) during periods of tight budgets for the Department. I suspect that during declining budget periods there are incentives to budget and then baseline programs with higher cost risk rather than remove needed capabilities from the budgeted program.

We are in real danger of repeating this history today. Acquisition reform during tight budgets tends to take the form of substituting wishful thinking and hope for sound estimates, effective risk mitigation, and full funding. With the Congress' and the leadership of the Department's support, I intend to break this cycle.

The data shows this budget-climate effect seems to exist regardless of the actions taken in the past 45 years to implement one version or the other of "acquisition reform." These results reinforce the importance of our efforts to institutionalize long-term affordability planning and constraints, to use independent cost estimates to inform baselines, and to adjust requirements based on realistic affordability constraints and cost-benefit relationships.

Supporting Congress' Acquisition Reform Legislative Initiative. My staff has been working in close coordination with Chairman Thornberry and the staff on ways to reduce the

⁶McNicol, David L., and Linda Wu, *Evidence on the Effect of DoD Acquisition Policy and Process On Cost Growth of Major Defense Acquisition Programs*, Institute for Defense Analyses, Paper P-5126, September 2014.
<http://www.dtic.mil/dtic/tr/fulltext/u2/a609472.pdf>

overhead and bureaucracy that our program managers and their teams face. We have also worked with the Senate Armed Services Committee (SASC) staff and my recent discussions with Chairman McCain and new professional staff members have been very encouraging. Our mutual goal is to enable program managers to place greater emphasis on controlling cost, mitigating risk, and meeting schedule, and less time on bureaucracy and unnecessary paperwork.

Last year, motivated by the long dense tables of compliance requirements in the updated DODI 5000.02, and with encouragement from Congressional leadership, I commissioned a "Legislative Initiative" to comprehensively review statutory requirements and develop a set of legislative proposals to simplify the existing confusing, complex, interwoven, and sometimes contradictory body of law that has built up over decades and which our Program Managers must comply. We assembled a team with representation across the Department, to include the Army, Navy, and Air Force. Using an evidence-based approach, the team conducted detailed case studies on an array of major programs that recently achieved major milestones in the acquisition process, focusing on the compliance burdens and processes required by statute.

Our analysis revealed the accumulation of statutory requirements over time often establishing specific processes or reports to address risks evident in past programs. While succeeding in calling attention to specific issues in the development and fielding of our programs, these requirements often duplicated other aspects of the process or generated redundant documentation. These proposals we would like the Congress to consider are designed to maintain emphasis on the types of risks highlighted in prior legislation, while providing greater flexibility to tailor compliance and eliminate unnecessary red tape. Because these statutory requirements are additive over time, we also attempted to consolidate related requirements within foundational statutory provisions.

The proposals were developed over a period of several months by a team originally led by Andrew Hunter, formerly a staff member on this Committee, and now led by Gabe Camarillo (Principal Deputy Assistant Secretary of the Army for Acquisition, Logistics & Technology), with input from subject matter experts in the Services and other Office of the Secretary of Defense organizations. Many of the major defense programs reviewed developed in excess of 40 documents (statutory and regulatory) to meet information requirements mandatory at milestone reviews. A significant number of these documents provided the Program Manager minimal support in the development of their acquisition strategy or in program execution. One program expended 103,028 man hours to develop and staff 59 documents at a total estimated cost of \$13.1M alone. Another Service estimate concluded the cost to produce milestone documentation

is between \$14M and \$19M for each milestone of a major program. A different office reported that a single report on manpower costs associated with a howitzer program required 365 total days to staff and approve – a process completed well after the information had been already utilized in the cost estimation process as intended by statute. These case studies, along with discussions with a vast number of Department employees, industry, and engagement with Congressional staff resulted in proposals that recommend statutory changes to the acquisition process to help streamline our system and to allow our managers to focus on substance instead of compliance.

The proposals recommend substantial changes to some processes, such as revising the milestone certification requirements for programs in technology maturation and development phases, as well as a host of minor changes to others calling for reporting or requirements or notification to Congress of specific decisions. While changes are recommended, the proposals maintain original emphasis on the underlying problems and goals identified in the original statutes – even as redundant processes or reports are eliminated. If this package of proposals is enacted, I believe documentation requirements for major acquisition programs will be reduced by up to 50% while creating a stronger emphasis on real risk reduction and sound program planning.

The layers of well-intended statutory requirements and piles of regulation make the task of managing an acquisition program harder than it needs to be and does not empower our workforce for success. One thing I hope we can all agree on is the need to simplify and rationalize the bureaucratic burdens we place on our acquisition professionals – which is why I look forward to our continued close and cooperative work in this area with both the House and Senate Armed Services Committees.

CONCLUSION

Given the Department's five-year plan through 2020, I can tell you right now what capabilities we will have in 2025. If a weapon system is not in our five-year plan as a development program today, the Department will not have that capability in meaningful quantities within the next decade. It is possible to move a complex weapon system through development in those additional five years from 2021 to 2025, but we are unlikely to be able to also produce and field a useful inventory within that same period of time. Technological superiority is not a tomorrow problem; it is here today. I'm anxious to work with the Committee on acquisition reform or improvement, and I am confident that the initiatives we are pursuing

under Better Buying Power and recommending in the Legislative Initiative will all improve the performance of the acquisition system. In my view nothing we do can overcome the harm that would be done through sequestration and the resulting lack of adequate research and development funding.

Frank Kendall
Under Secretary of Defense for Acquisition, Technology and Logistics

Senate Confirmed in May 2012, Mr. Frank Kendall currently serves as the Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L). In this capacity, he is responsible to the Secretary of Defense for all matters pertaining to acquisition; research and engineering; developmental testing; contract administration; logistics and materiel readiness; installations and environment; operational energy; chemical, biological, and nuclear weapons; the acquisition workforce; and the defense industrial base. He is the leader of the Department of Defense's efforts to increase the Department's buying power and improve the performance of the defense acquisition enterprise. Prior to this appointment, from March 2010–May 2012 he served as the Principal Deputy Under Secretary and also as the Acting Under Secretary.

Mr. Kendall has over 40 years of experience in engineering, management, defense acquisition, and national security affairs in private industry, government, and the military. He has been a consultant to defense industry firms, non-profit research organizations, and the Department of Defense in the areas of strategic planning, engineering management, and technology assessment. Mr. Kendall was Vice President of Engineering for Raytheon Company, where he was responsible for management direction to the engineering functions throughout the company and for internal research and development. Before assuming his current position, Mr. Kendall was a Managing Partner at Renaissance Strategic Advisors, a Virginia-based aerospace and defense sector consulting firm.

Within government, Mr. Kendall held the position of Director of Tactical Warfare Programs in the Office of the Secretary of Defense and the position of Assistant Deputy Under Secretary of Defense for Strategic Defense Systems. Mr. Kendall is a former member of the Army Science Board and the Defense Intelligence Agency Science and Technology Advisory Board and he has been a consultant to the Defense Science Board and a Senior Advisor to the Center for Strategic and International Studies. Mr. Kendall also spent ten years on active duty with the Army serving in Germany, teaching Engineering at West Point, and holding research and development positions.

Mr. Kendall is an attorney and has been active in the field of human rights, working primarily on a pro bono basis. He has worked with Amnesty International USA, where he served as a member of the Board of Directors, with Human Rights First, for which he was an observer at Guantanamo, and with the Tahirih Justice Center, where he was Chair of the Board of Directors.

Over the course of his career as a public servant, Mr. Kendall was awarded the following federal civilian awards: Defense Distinguished Civilian Service Medal, Secretary of Defense Meritorious Civilian Service Medal, Presidential Rank Award of Distinguished Executive (Senior Executive Service), Presidential Rank Award of Meritorious Executive (Senior Executive Service), and Army Commander's Award for Civilian Service. He also holds the following military awards (US Army): Meritorious Service Medal with oak leaf cluster, Army Commendation Medal, and National Defense Service Medal.

Mr. Kendall is a Distinguished Graduate of the U.S. Military Academy at West Point and he holds a Masters Degree in Aerospace Engineering from California Institute of Technology, a Master of Business Administration degree from the C.W. Post Center of Long Island University, and a Juris Doctor degree from Georgetown University Law Center.

Testimony

Before the House Committee on Armed Services

Witness Statement of

Lt Gen Mark Ramsay

Director

Force Structure, Resources and Assessments (J8)

Joint Staff

January 28, 2015

Chairman Thornberry, Ranking Member Smith and distinguished members of the committee, I appreciate the opportunity to testify before you today. I will provide insights into the Joint Staff's role in the requirements generation and capabilities development process; specifically highlighting the close linkages between requirements, acquisition, and other Departmental processes. I want to assure you that we are committed to the delivery of key capabilities to the warfighter by using agile and responsive process integration, and will provide examples of recent requirements process reforms aimed at better synchronization with our acquisition process.

The Joint Capabilities Integration and Development System, or JCIDS, is the Department's process that supports the Chairman of the Joint Chiefs of Staff (CJCS) and the Joint Requirements Oversight Council, the JROC, in identifying, assessing, and prioritizing joint military capability needs as specified in Title X, United States Code Section 181.

The JROC is the Department's senior validation authority of joint military requirements. It is within this body that requirements for our larger, more significant acquisition programs are discussed, and trade-offs in cost, schedule, quantity and performance are deliberated, prioritized and ultimately validated. Statutory membership is comprised of the Vice Chairman of the Joint Chiefs of Staff (VCJCS), who serves as the JROC Chairman, the Vice Service Chiefs, and the Combatant Commanders. Statutory senior advisors include Mr. Kendall, the Under Secretary of Defense for Acquisition, Technology and Logistics, the Under Secretaries of Defense Comptroller and Policy, the Director of Capability Assessment and Program Evaluation, and the Director of Operational Test and Evaluation. They are full-time participants in JROC deliberations, and integral to joint requirements review and validation. Leadership from the intelligence community (USD(I), NRO, NSA, and NGA), while not statutory advisors, are regular participants at the request of the Vice Chairman as the intelligence community has equity in so many of the department's capability development efforts. In addition to identifying, approving, and prioritizing all joint military requirements the JROC:

- is charged with ensuring trade-offs across life-cycle cost, schedule, performance, and procurement quantity are addressed throughout the development process
- is responsible for ensuring total cost and resource expenditure in pursuit of a given capability is consistent with the JROC assigned level of priority

- identifies alternatives to acquisition, both in terms of material alternatives and in the form of changes to our doctrine, organization, training, leadership, education etc., when non-material solutions to a gap in capability may also exist.

The JROC Charter and JCIDS Instruction prescribe JROC review and “re-validation” of previously reviewed capability development documents and programs at specific times along the capability development continuum; in general terms prior to each acquisition milestone decision. These frequent touch points are complemented by close and continuous collaboration between requirements and acquisition professional at all levels. Regular JROC review also ensures resource sponsors actively monitor and manage the cost, schedule and performance trade space throughout the capability development, production, and sustainment process. High interest programs or those requiring additional senior leader oversight are often reviewed on a semi-annual update interval or other appropriate frequency determined by the JROC.

The subject matter experts charged with conducting the day-to-day management of joint requirements reside in one of six Functional Capability Boards (FCB):

- Battlespace Awareness (BA)
- Command, Control, Communications, and Computers / Cyberspace (C4/Cyber)
- Force Application (FA)
- Force Support (FS)
- Logistics (LOG)
- Protection (PROT)

The FCB’s are aligned along common capability core areas and are reflective of the Department’s Joint Capability Areas which provide a common capability management language and framework. The FCB’s evaluate joint capabilities and provide analytical support to the JROC and its subordinate Joint Capability Board which I chair in my role as the Director, J8. The FCB’s are comprised of functional subject matter experts from across the Department and, like the JROC, have fully integrated stakeholders from across the Department. The FCB’s provide assessments and recommendations that enhance capabilities integration, examine joint priorities among existing and future programs, and assess program alternatives to minimize duplication of effort across the Services. Lastly, they provide oversight in the management of materiel and non-material changes that support the national defense and military strategies to

help achieve optimum effectiveness and efficiency of the Armed Forces. In short, the FCB's provide a continuous level of oversight to ensure capabilities development stays on track.

JCIDS is a mature and proven process for generating and validating requirements. The process constantly evolves in conjunction with improvements in Defense Acquisition processes. Frequent formal and informal discussions between the JROC Chairman and USD (AT&L), provide opportunities for discussion of on-going improvements, and ensures best practices and process change recommendations are rapidly incorporated. A number of recent reforms that have refined our requirements process are worth noting. Major revisions to the JROC and JCIDS governing documents and the manner in how the supporting bodies carry out their responsibilities in accordance with 10 USC 181 and applicable portions of the Weapon System Acquisition Reform Act of 2009 were made in 2012. This committee played a key role in those reforms that have enabled us to improve the JCIDS process. The 2012 reforms added emphasis on analysis of risk, cost, schedule, and performance; expanded tripwire criteria; incorporated pre-Milestone A review of Analysis of Alternatives (AOA) results to inform the follow-on Capability Development Documents (CDD); established deliberate, urgent, and emergent requirements lanes to better respond to capability gaps within acceptable timeframes and levels of risk; and consolidated guidance documents, streamlined procedures, and mandated shorter document length and staffing timelines.

Additionally, significant changes were made to how the JROC was conducted by limiting attendance to principles, advisors, and essential "plus ones." Significantly reducing the audience has fostered an environment in the JROC that enables more determinative discussion and impactful decision making. Tough "knee in the curve" discussions are now commonplace to help identify and pursue the "good enough" vice the "exquisite" solutions where we can do so. JROC Memorandum (JROCM) 015-13, signed by the Vice Chairman in 2013, encourages acquisition managers, in coordination with the appropriate requirements sponsor, to request requirements relief where Key Performance Parameters (KPP) appear out of line with an appropriate cost-benefit analysis. Prior to this JROCM, the JROC was rarely asked to review Key Performance Parameters once an acquisition program reached more mature levels. Shortly after the release of this particular JROCM, the Air Force requested KPP relief for the minimum number of users supported by the Joint Space Operations Center Mission System. The JROC reduced the

threshold value for the number of concurrent users and consequently enabled the Air Force to meet the timeline for increment 1 Milestone C at reduced cost.

Additionally, the Army brought its Apache Block III program back to the JROC for relief of its hover-out-of-ground-effect (HOGE) capability. The JROC approved the proposed change which allowed for a slight decrease in the required performance to account for expected engine wear over the life of the program. Additional examples of improvements in the process that can be attributed to these and other JCIDS reform efforts include:

- Joint Air Ground Missile (JAGM): The JROC-approved KPP relief for JAGM range based on an updated acquisition strategy employing incremental thresholds for range values. The new range values satisfied the necessity to exceed current Hellfire capabilities and allowed the program to remain affordable without driving delivery delay to the warfighters.
- Ground Combat Vehicle/Amphibious Combat Vehicles (GCV/ACV): After a JROC directed comprehensive review, it was determined a common platform for both Services was not achievable due to the differences in mission requirements. However, the JROC identified common technical areas and subsystems which could provide cost savings. By employing a portfolio perspective in validating the requirements, the JROC was better able to define requirements more efficiently and effectively.
- LRS-B (Long Range Strike – Bomber): From the initiation of the ICD and CDD, the JROC reviewed and approved both documents in less than 30 days. This process would have taken at least 6 months prior to the enacted reforms.
- Global Positioning Satellite Modernization (GPS) Analysis of Alternatives (AoA): Review resulted in confirmation that CCMD requirements were satisfied through the current program of record; resulting in avoidance of substantial expenditures to achieve unneeded performance improvements.
- Armored Multi-Purpose Vehicle (AMPV): After validation of the CDD, industry engagement resulted in a KPP change proposals to several performance parameters in order to remain within affordability targets.
- DoD / Industry Partnership: DoD is striving to push capability gap information out to industry earlier in the acquisition process and provide them insight into what DoD is

considering for future capabilities. By partnering early with industry, DoD is better able to leverage industry S&T efforts and, informed by early S&T development, provide feasible and affordable options for acquisition decisions. A recent example of this new approach is the Army's Future of Vertical Lift (FVL) Initial Capabilities Document (ICD) which defined capability gaps in the 2030 and beyond Joint Operational Environment. Combatant Command identified capability gaps are being shared with industry early in the assessment process providing a starting point for requirements determination and cost informed trades.

We have just completed our 2014 revision of the JCIDS manual which continues to enhance the JCIDS process and ultimately our acquisition process. This revision incorporates significant changes to intelligence certification; refines Capabilities Based Assessment (CBA) guidance; directs further leveraging of science and technology efforts; increases focus on the development of measurable and testable operational attributes; and further streamlines document format and staffing. We are constantly revising the way we do business and will continue to emphasize flexibility and speed in requirements review and validation, and when necessary, reassess and adjust previously validated documents when poorly crafted requirements inhibit acquisition program success. Our ultimate goal remains ensuring the requirements process remains agile, responsive, innovative, cost effective and capable of developing and delivering a technologically superior and ready joint force to achieve our Nation's strategic and military objectives.

Lieutenant General Mark F. Ramsay
Director, Force Structure, Resources and Assessment, J8

Lt. Gen. Mark F. Ramsay is the Director, Force Structure, Resources and Assessment (J8), Joint Staff, the Pentagon, Washington, D.C. He develops capabilities; conducts studies, analysis and assessments; and evaluates plans, programs and strategies for the chairman of the Joint Chiefs of Staff. He serves as the Joint Requirements Oversight Council Secretary and as the Chairman of the Joint Capabilities Board.

General Ramsay entered the Air Force in 1982 as a distinguished graduate of the Officer Training School. He has commanded air refueling and expeditionary air refueling squadrons, an operations group comprising six different fixed and rotary-winged airlift aircraft transporting our nation's most senior leaders, an air refueling wing and a numbered air force.

General Ramsay's staff tours include Chief of the Programs and Mobility Division at Headquarters U.S. European Command and the Chief of two programming divisions, Global Mobility and Program Integration, at Headquarters U.S. Air Force. He also served as Deputy Director of Politico-Military Affairs for Europe, NATO, Russia and Africa on the Joint Staff, and the Deputy Chief of Staff, Operations and Intelligence, Supreme Headquarters Allied Powers Europe, NATO, Casteau, Belgium. Prior to his current assignment he was the Commander of 18th Air Force at Scott AFB, Ill.

EDUCATION

1980 Bachelor of Science degree in aeronautical science, Embry-Riddle Aeronautical University, Fla.
 1987 Distinguished graduate, Squadron Officer School, Maxwell Air Force Base, Ala.
 1992 Master of Science degree in aviation management, Embry-Riddle Aeronautical University
 1993 Air Command and Staff College, Maxwell AFB, Ala.
 1997 Air War College, by correspondence
 1999 Master of Arts degree in national security and strategic studies, with highest distinction, Naval War College, Newport, R.I.
 2003 National Security Studies, Syracuse University, N.Y.
 2009 Defense Policy Seminar, George Washington University, Washington, D.C.
 2011 Joint Flag Officer Warfighting Course, Maxwell AFB, Ala.

ASSIGNMENTS

1. January 1983 - December 1983, Student, undergraduate pilot training, Laughlin AFB, Texas
 2. December 1983 - May 1989, C-9A Evaluator Pilot and assistant Chief of Standardization and Evaluation, 11th Aeromedical Airlift Squadron, Scott AFB, Ill.
 3. May 1989 - August 1992, C-9C Instructor Pilot, assistant Chief of Wing Programs and Requirements, and Wing Executive Officer, 89th Airlift Wing, Andrews AFB, Md.
 4. August 1992 - June 1993, Student, Air Command and Staff College, Maxwell AFB, Ala.
 5. June 1993 - June 1995, Deputy Division Chief and Strategic Airlift Program Element Monitor, Mobility, Training and Special Operations Requirements Division, Directorate of Operational Requirements, Headquarters U. S. Air Force, Washington, D.C.
 6. June 1995 - July 1998, Operations Officer and Commander, 98th Air Refueling Squadron, Fairchild AFB, Wash.
 7. July 1998 - July 1999, Student, Naval War College, Newport, R.I.
 8. August 1999 - July 2001, Chief, Programs and Mobility Division, Logistics and Security Assistance Directorate (ECJ4), Headquarters U. S. European Command, Stuttgart-Vaihingen, Germany
 9. July 2001 - August 2003, Commander, 89th Operations Group, Andrews AFB, Md.
 10. September 2003 - March 2005, Commander, 319th Air Refueling Wing, Grand Forks AFB, N.D. (October 2004 - March 2005, CENTAF Deputy Director of Mobility Forces, Southwest Asia)
 11. March 2005 - February 2006, Chief, Global Mobility Division, Directorate of Programs, Deputy Chief of Staff for Strategic Plans and Programs, Headquarters U.S. Air Force, Washington, D.C.
 12. February 2006 - January 2007, Chief, Program Integration Division, Directorate of Programs, Deputy Chief of Staff for Strategic Plans and Programs, Headquarters U.S. Air Force, Washington, D.C.
 13. January 2007 - September 2008, Deputy Director for Politico-Military Affairs for Europe, NATO, Russia and Africa (J5), Joint Staff, the Pentagon, Washington, D.C.
 14. September 2008 - October 2009, Director, Air Force Strategic Planning, Deputy Chief of Staff for Strategic Plans and Programs, Headquarters U.S. Air Force, Washington, D.C.
 15. October 2009 - September 2011, Deputy Chief of Staff, Operations and Intelligence, Supreme Headquarters Allied Powers Europe, NATO, Casteau, Belgium
 16. September 2011 - August 2012, Commander, 18th Air Force, Scott AFB, Ill.
 17. August 2012 - Present, Director, Force Structure, Resources and Assessment, Joint Staff, the Pentagon, Washington D.C.

SUMMARY OF JOINT ASSIGNMENTS

1. August 1999 - July 2001, Chief, Programs and Mobility Division, Logistics and Security Assistance Directorate (ECJ4), Headquarters U. S. European Command, Stuttgart-Vaihingen, Germany, as a colonel
2. January 2007 - September 2008, Deputy Director for Politico-Military Affairs for Europe, NATO, Russia and Africa (J5), Joint Staff, the Pentagon, Washington, D.C., as a brigadier general
3. October 2009 - September 2011, Deputy Chief of Staff, Operations and Intelligence, Supreme Headquarters Allied Powers Europe, NATO, Casteau, Belgium, as a major general

FLIGHT INFORMATION Rating: Command pilot

Flight hours: More than 4,900

Aircraft flown: T-37, T-38, C-9A, C-9C, C-20B, C-37A, C-40B, KC-135R, KC-135T and UH-1N

MAJOR AWARDS AND DECORATIONS

Defense Superior Service Medal with two oak leaf clusters

Legion of Merit with two oak leaf clusters

Meritorious Service Medal with three oak leaf clusters

Air Medal

Air Force Outstanding Unit Award with "V" device, one silver and two bronze oak leaf clusters

NATO Meritorious Service Medal

EFFECTIVE DATES OF PROMOTION

Second Lieutenant Dec. 22, 1982

First Lieutenant Dec. 22, 1984

Captain Dec. 22, 1986

Major May 1, 1993

Lieutenant Colonel Jan. 1, 1997

Colonel April 1, 2000

Brigadier General May 30, 2007

Major General Dec. 4, 2009

Lieutenant General Sept. 23, 2011

(Current as of August 2012)

**WITNESS RESPONSES TO QUESTIONS ASKED DURING
THE HEARING**

JANUARY 28, 2015

RESPONSE TO QUESTION SUBMITTED BY MR. PETERS

Secretary KENDALL. The August 2014 Competition Guidelines and my associated memorandum provided a list of actions the Department is taking to promote competition consistent with the Better Buying Power (BBP) 2.0 Initiatives. The Guidelines were intended to complement and work in concert with the overarching principles identified in BBP 2.0, and to provoke thought about strategies useful for creating and maintaining a competitive environment throughout the life cycle of products and services, including IT acquisitions. The guidance and requirements are being incorporated in the Defense Federal Acquisition Regulation Supplement Procedures, Guidance, and Information in FY 2015.

Additional guidance specific to IT acquisitions is in the Department's DoD Open Systems Architecture (OSA) Contract Guidebook for Program Managers. The Guidebook contains recommendations for writing a strong, OSA-based statement of work, guidance on special contract requirements, recommended contract line items, and guidance on obtaining intellectual property and data rights to support and enhance competition throughout the full life cycle.

Last fall, as the chair of the Business-Senior Integration Group (B-SIG), I began focusing senior leader attention on competition measures to increase visibility and accountability. The B-SIG is addressing the Department's competitions results, tools, trends and guidance to increase competition. On a quarterly basis, the Acquisition Executives present their competition results and respective efforts to improve competition achievements. [See page 18.]

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

JANUARY 28, 2015

QUESTIONS SUBMITTED BY MR. TURNER

Mr. TURNER. In the 2013 Performance of the Defense Acquisition System Report, you noted that “the time required to acquire next-generation capabilities is often longer than the strategic threat and technology cycles these capabilities are meant to address.” Additionally, you further concluded that “while most cost growth measures are improving, median cost growth across the MDAP portfolio is not zero and will likely lead to near-term affordability challenges given flat or declining fiscal resources.” Given the historic and continuing inability to deliver capabilities that are ahead of the threat, what can Congress and Industry do to help resolve this dilemma in view of declining resources?

Secretary KENDALL. Besides addressing the declining resources directly by eliminating sequestration, there are a number of additional things that can be done.

Support for legislative reforms that reduce the statutory overhead and bureaucracy faced by Department of Defense (DOD) program managers and their teams is an area in which assistance from Congress and Industry is needed. This will allow program managers to be more agile, enabling them to spend their limited time more effectively addressing evolving threats, controlling cost, mitigating risk, and meeting schedule while expending less time on bureaucratic requirements that do not add value and that create unnecessary paperwork.

Legislative assistance to efficiently deal with the inevitable technical challenges that most programs encounter in managing lengthy development efforts and keep agile in dealing with evolving threats would be extremely helpful.

The Department needs industry to focus its Independent Research and Development on timely and cost-effective new capabilities in response to external threats and is working to improve Industry’s access and understanding of intelligence on evolving threats. In turn, Industry needs to bring forward open systems that allow insertion of innovative solutions to address threat evolution. It is also necessary for companies that support DOD to help the Department better understand and tap the rapid innovation and technology development in the commercial sector.

Finally, Industry information and bids must be realistic and offer timely, pragmatic solutions. What is often termed “low-balling a proposal,” failing to recognize and manage risks, or offering overly complicated weapon systems increases the likelihood for problems down the road and detracts from national security. It is crucial that the Department, Congress, and Industry work together to recognize and manage risks, be willing to cancel or fix failing efforts despite sunk costs or equities, and be more flexible in response to changing technologies and threats.

Mr. TURNER. Should broader and more profound use of industry innovations through rapid fielding and deployment be part of the solution?

Secretary KENDALL. I recently revised Department of Defense (DOD) Instruction 5000.02 to include an enclosure on rapid acquisition, which states “DOD’s highest priority is to provide Warfighters involved in conflict or preparing for imminent contingency operations with the capabilities urgently needed to overcome unforeseen threats, achieve mission success, and reduce risk of casualties, as described in DOD Directive 5000.71 (Reference (cc)). The objective is to deliver capability quickly, within days or months.”

Rapid acquisition allows new and innovative capabilities, often derived from re-application of technologies originally developed for non-military purposes, to be quickly placed in the hands of the warfighter for assessment and adoption. These rapid acquisition programs offer opportunity to generate insight and understanding that can help drive innovation into more deliberate programs of record.

Mr. TURNER. Does the Department have the budget and legal authority flexibility it needs to further exploit industry innovations through rapid fielding and deployment of leading edge technologies?

Secretary KENDALL. I believe the Department has sufficient legal authority and flexibility to execute rapid acquisition programs when operating under a normal and timely budget process. Our efforts over the last few years have been impacted by Continuing Resolution Authorities. This may impact and burden our efforts to execute rapid acquisition efforts in a timely manner.

Mr. TURNER. Does the Department view rapid fielding and deployment of industry innovations as either a method of spurring industry investment, by better assuring a competitive return, or solely as a method of getting technologies to the warfighter, or both?

Secretary KENDALL. The Department recognizes that rapid fielding and deployment of industry innovations offers multiple benefits. I recently revised Department of Defense (DOD) Instruction 5000.02 to include an enclosure on rapid acquisition, which states “DOD’s highest priority is to provide Warfighters involved in conflict or preparing for imminent contingency operations with the capabilities urgently needed to overcome unforeseen threats, achieve mission success, and reduce risk of casualties, as described in DOD Directive 5000.71 (Reference (cc)). The objective is to deliver capability quickly, within days or months.”

The Department also recognizes that our rapid fielding programs provide a mechanism to provide timely feedback to industry on our utilization of their solutions to urgent military needs, which can facilitate aligning industry efforts with Warfighter needs.

In Better Buying Power 3.0, I have a focused initiative on incentivizing innovation in industry and government.

QUESTIONS SUBMITTED BY MR. ROGERS

Mr. ROGERS. Mr. Kendall, last year the Department provided Congress with a Satellite Communications Strategy Report. An important point was made in this report. The report stated that:

“Currently, funding for commercial SATCOM is decentralized and allocated to the Combatant Commands, Services, and DOD Agencies, with task orders based on individual component needs, and with limited regard for sharing opportunities between components. This decentralized approach impedes centralized, multi-year acquisition and hinders the DOD’s ability to manage MILSATCOM and commercial SATCOM as a holistic capability to best support the warfighter.”

What are your thoughts regarding centrally procuring SATCOM, to include multi-year acquisition of communications satellite communications? Considering we spend billions of dollars on satellite communications (both military and commercial), what other improvements do you think need to be made regarding better acquisition of this important capability?

Secretary KENDALL. The Department of Defense already centrally funds and procures MILSATCOM. The Defense Information Systems Agency centrally procures most (about 70% and increasing) commercial satellite communications (COMSATCOM) services. In my opinion, central funding has merit to satisfy predictable, enterprise-level COMSATCOM requirements. For example, in the FY 2012 President’s Budget, DOD proposed a centrally-funded, multi-year capital lease of a commercial satellite to satisfy requirements in the United States Central Command area of responsibility. DOD estimated that under operational conditions at the time, this investment would have been recouped within 2–3 years by avoiding the cost of annual COMSATCOM task orders. Congress redirected funds to procure Wideband Global SATCOM #10 so the estimated return on this proposed COMSATCOM investment was never verified. In a series of small-scale “pathfinder” initiatives, we have begun to explore other improvements to better acquire and manage COMSATCOM. Acquisition pathfinders will examine multi-year service contracts, on-orbit and pre-launch purchases of COMSATCOM, and purchases of global portable bandwidth. Operational management pathfinders will examine utilization monitoring and enterprise-level sharing of COMSATCOM resources to increase effectiveness and efficiency. DOD will report its pathfinder plan to Congress in response to Section 1605 of the FY 2015 National Defense Authorization Act—Pilot Program for Acquisition of Commercial Satellite Communication Services. As evidence warrants, pathfinder concepts can be scaled to enterprise-wide solutions.

Mr. ROGERS. Related to acquisition of military satellites, I’d like to better understand your perspective on how to lower costs yet continue to increase capabilities of our space programs. I’m thinking about programs such as missile warning and protected communications satellites. Historically, has it been more cost-effective to incrementally upgrade existing capabilities or start new space programs?

Secretary KENDALL. Our past data and analyses demonstrate that it has historically been more cost effective to increase the capabilities of our space assets by incrementally upgrading our existing space programs. However, recent trends in space procurement may impact cost effectiveness and alter our strategy to meet requirements. For example, the rise of space commercialization and the emergence of standard satellite buses for dual commercial and military use have afforded the De-

partment more flexibility in our space acquisition approaches. Additionally, as identified by last year's Space Strategic Portfolio Review, the mounting threat to our space capabilities may require dramatic change to the configuration of our satellites and overall architecture, potentially driving significant transformation rather than evolutionary improvement.

For every program, we need to carefully review alternate acquisition approaches to find the most cost effective path for the particular needs of the Warfighter. Therefore, we are currently conducting Analyses of Alternatives (AoAs) for the missile warning and protected communications satellite programs to determine the best path forward for these two mission areas. The Space Based Infrared System and Advanced Extremely High Frequency satellite program have recently awarded new contracts for two satellites each to replenish existing on-orbit capabilities. Emerging threats coupled with an increasingly austere budget environment compel the Department to perform these AoAs and supporting analyses to inform the next set of acquisition decisions.

Mr. ROGERS. I'm concerned about space governance in the Department. Particularly when I see programs such as the Navy Mobile User Objective System (MUOS), with the first satellite launched about 3 years ago and the 3rd satellite recently launched, and only 10% of the capability of these three satellites able to be used because of delays in ground and user terminals. The Navy leads the space and ground components, while the Army leads the user terminals. There are many other examples of space programs that are not properly synchronized across the various segments. Is this lack of synchronization an acquisition problem, a leadership problem, a money problem? How do we fix this?

Secretary KENDALL. Better planning and acquisition oversight is needed to improve program synchronization issues in conjunction with improved metrics and more specific definitions.

Based on a recently completed study briefed to the Defense Space Council in December 2014, the Department is implementing a standard assessment of integration/synchronization across the space portfolio more closely integrated with the budget formulation and deliberation process. As I indicated in my January 26, 2015, letter to the congressional defense committees, the Department will be submitting an initial exemplar report covering a single representative program (Space Based Infrared System) in June 2015, and a comprehensive initial annual report with submission of the FY 2017 President's Budget. While this initial report is overdue to Congress, the definitional and procedural framework needed to accomplish such an assessment in a consistent, repeatable manner was needed. Additionally, this approach can be applied for future programs being approved at Milestone B in order to fulfill the statutory requirements contained in the FY 2013 NDAA.

QUESTIONS SUBMITTED BY MR. SHUSTER

Mr. SHUSTER. What must be done by both the services and Congress to facilitate greater use of open architecture, modularity, and defense-owned technologies/software/programming to reduce overall acquisition costs and timelines?

Secretary KENDALL. Department of Defense (DOD) acquisition policy holds program managers responsible for applying modular, open systems architectures in product designs where it is feasible and cost effective. I expect program managers to make maximum use of appropriate modular, open systems approaches to enable competition, facilitate reuse, and ease technology insertion. These approaches are documented and approved in our program acquisition strategies.

DOD uses a broad array of approaches to managing and reusing the technology and software rights that we own, including use of enterprise-wide licenses, code repositories, and open source software, where appropriate. Under Better Buying Power 3.0, our initiatives on removing barriers to commercial technology utilization and emphasizing technology insertion and refresh in program planning are targeted at improving our ability to manage technologies and better leverage the rights we own and license.

At this time, I do not believe the department requires any additional congressional action in this area.

Mr. SHUSTER. What are the biggest threats to continued American dominance in the area of military technology?

Secretary KENDALL. We are concerned that other advanced states, in particular Russia and China, are pursuing modernization programs that are focused on defeating specific systems that provide the United States with the capabilities that enable us to project power globally. The scope and rate of global development in "anti-access/area-denial" systems puts our technological superiority at risk.

Details of particular threats to U.S. Military capabilities have been provided in recent classified briefings to Members. My staff and I are prepared to provide additional details on these areas if requested.

One area of particular concern is the proliferation of advanced land attack and anti-ship cruise and ballistic missiles, with associated developments in technologies that improve accuracy and attempt to counter missile defenses, as these extend the ability and effectiveness of threat surface forces, surface ships, bombers, and submarines to hold U.S. forces, installations, and the capabilities of our allies and partners at risk at extended ranges. Another area concerns the proliferation of advanced missile and air defenses and the emergence of foreign 5th generation fighters with low observability, advanced weapons, and advanced sensors that offer challenges to future U.S. air dominance and strike capabilities. In addition, emerging capabilities in electronic warfare threaten sustained U.S. dominance of the electromagnetic spectrum, with implications across multiple warfighting domains. Areas where the United States has long held significant advantage, such as in the space and the undersea environments, are increasingly challenged by the number and sophistication of military systems being employed by other states.

Mr. SHUSTER. Are there any specific military areas where the United States is falling critically behind in the area of technological development? How can we better streamline the research and development process to foster innovation?

Secretary KENDALL. The United States remains the predominant military power in the world. We are concerned that other advanced states, in particular Russia and China, are pursuing modernization programs that are focused on defeating specific technological capabilities that provide the United States with critical capabilities that enable us to project power globally. The scope and rate of global development in "anti-access/area-denial" (A2/AD) technologies puts our technological superiority at risk in the near future if we fail to respond to the altered strategic landscape.

Details of particular threats to U.S. military capabilities have been provided in recent classified briefings to Members. My staff and I are prepared to provide additional details on these areas if requested.

The Department's Better Buying Power 3.0 initiatives are intended to focus our acquisition and development communities on the need to focus on harnessing American innovation to insure continued technical dominance in the national security arena. These include initiatives focused on reassessing our internal and external research and development (R&D) efforts to maximize the return on every dollar invested, efforts to coordinate industry and government R&D more effectively, efforts to ensure that our development programs are informed by intelligence on emerging threats, efforts to ensure that programs plan for continuous technology refresh to insure that our capabilities keep up with globalized technologies, and efforts emphasizing the importance of appropriately aligning incentives for government and industry to ensure that we achieve innovative, cost-effective solutions in our acquisition programs.

Mr. SHUSTER. How serious is requirements creep? Are requirements for new weapons programs adequately understood and current? Does our current system of assessing future requirements for new programs sufficiently assess the future needs of the warfighter and accurately project future technological changes?

Secretary KENDALL. Changing requirements are sometimes unavoidable and an ongoing challenge. Technology vectors, operational concepts, and resulting requirements for new weapon systems are reasonably well understood and current when we baseline programs, but the future always involves uncertainty. Technologies evolve. New technologies emerge. Threats change. Opportunities arise. Unknowable problems are discovered in development. This area is a focus of Better Buying Power 3.0, as we do believe our system needs to improve its ability to recognize and integrate changes to reflect the changing environment appropriately.

Mr. SHUSTER. When and how do you best make the call that a program has reached the end of its lifespan and incremental upgrades are no longer worth the cost vs. the benefits gained?

Secretary KENDALL. The acquisition community works with the Services to determine the best way to acquire a system that satisfies requirements that have been validated by the Joint Requirements Oversight Council. This includes whether an upgrade to an existing system or a new design is the best approach and is affordable in meeting the capability needs. Analyses of Alternatives consider these trades in the early stages of programs; the Department also considers this important trade before any new increment of capability for a system is initiated. At some point, the cost-benefit of upgrading a system may no longer be affordable relative to starting a new program. At that point, the Department will no longer invest in upgrades for the existing system and will consider a new program instead. The existing platforms

will remain in service for the remainder of the planned service life or until the new system is deployed.

Mr. SHUSTER. Should we defer development of entirely new weapons systems until all of the technology exists to create it? Is it better to aim for more distant technology in a large package program with the hope that it will spur development? Or does it make more sense to design new programs around technology that is already proven?

Secretary KENDALL. Developing weapon systems requires careful judgment of technological, operational, and financial risks. Systems designers must balance the likelihood that a technology will mature as predicted, integrate as planned, and deliver capabilities as promised as they identify and refine solutions to Warfighter needs. Staying ahead of the threat often requires taking informed risks to make timely delivery of the necessary difference-making performance. In these cases, active risk management and identification of technology risk mitigation alternatives should form the basis of a program's development plan. Weapon system programs should plan for technology insertion and refresh, not only to reduce risk, but also to keep pace with threat and obsolescence. This can be accomplished through well-crafted acquisition and contract strategies and through system designs and architectures that enable technology insertion or upgrade.

Mr. SHUSTER. Given the rapid pace of technological advancement, what is the best approach to keeping our weapons systems current? Should the focus be on developing and fielding entirely new systems or incremental upgrades of the units we already have?

Secretary KENDALL. Weapon system programs should plan for technology insertion and refresh, not only to keep pace with technological advancement, but ultimately to keep up with the latest threats. This can be accomplished through acquisition and contract strategies that plan for incremental capability delivery or system upgrades, as well as system designs, open architectures, and owning appropriate data rights that affordably and effectively enable modification and upgrade. Determining the appropriate acquisition and system design strategy involves careful assessment of opportunities, costs, and risks; and requires continuous dialogue between acquisition, requirements, and intelligence communities. The strategic decision on when to pursue a new system vs. upgrading existing systems must be informed by careful analysis of the cost and performance tradeoffs, the projected threats, and our operational and strategic approach to countering them. The impact on system life-cycle supportability is also a key consideration.

QUESTIONS SUBMITTED BY MR. GIBSON

Mr. GIBSON. In response to battlefield commanders' demands to field cutting edge radios that provide not only voice but data, imagery, and video, the Army—under your guidance—has moved to the concept of a radio market place with multiple vendors annually vying for delivery orders. Can you elaborate on why this model works for communications technology and how this strategy may be applied to other areas in DOD?

Secretary KENDALL. The model has significant potential because radio technology has shifted toward being software defined. The Department of Defense (DOD) has encouraged industry to adopt this modern approach through DOD's advance of the Software Communications Architecture (SCA) and open standard interfaces. The Department has also created a DOD Information Repository to provide vendors with software designed waveforms as government furnished equipment (GFE). These GFE waveforms can then be hosted on SCA compliant radios, thereby reducing the development time and cost and improving interoperability. The result is a current market place of more than 63 types of tactical radios that allow the flexibility to insert new features and capabilities as they become available. In order to capitalize on this new technological approach, a more agile and flexible testing environment must exist, allowing industry to rapidly bring their tested and proven capabilities to the user.

Why more frequent delivery order competes?

The shift in communications technology has allowed the Department to change its tactical radio acquisition strategy toward a non-developmental item (NDI) approach. The old acquisition strategy of developing new communications requirements and building a program of record to develop, test, field, and then maintain that single device over its life cycle does not align with the state of technology and rapid acquisition. Software Defined Radios (SDR) are designed to be modular, reprogrammable, and upgradeable. By adopting an NDI approach and spreading out delivery orders, the Army can add new industry developed capabilities (i.e. applications) to an exist-

ing radio, as well as capitalize on industry developed technology improvements such as faster processors, lower power consumption, longer battery life, and reduced weight.

Could this strategy be applied to other areas in DOD?

This is something that is being assessed. It works for tactical radios because industry has moved toward SDRs and embraced the SCA as an open systems architecture approach that facilitates the reuse of GFE furnished waveforms. For any DOD system that relies on software as its fundamental offering, NDI (software) approaches could mitigate lengthy and costly development.

In summary, in adopting a NDI approach with GFE waveforms for radios and communications systems provides insight as to how other software heavy DOD systems could leverage NDI software approaches to speed delivery, accelerate modernization, and reduce overall costs.

QUESTIONS SUBMITTED BY MR. COOK

Mr. COOK. Do you believe it's necessary that UAVs remain covered by the Missile Technology Control Regime if their primary use is for tactical military and intelligence surveillance missions?

Secretary KENDALL. The MTCR plays an important role in restricting the proliferation of missiles and delivery systems for Weapons of Mass Destruction (WMD), including equipment and technology. The MTCR decreases the risk of WMD delivery systems falling into the hands of terrorist groups and individuals and rogue states. Unmanned Aircraft Systems (UAS) that are capable of delivering a payload of 500 kg or more to a range of at least 300 km fall under MTCR Category I. Consistent with our MTCR commitments, these MTCR Category I UAS are subject to a strong presumption of denial, but have been approved for export on rare occasions that are well justified in terms of the nonproliferation and export control factors specified in the MTCR Guidelines.

However, many UAS are not capable of delivering a payload of at least 500 kg to a range of at least 300 km, do not fall under MTCR Category I, and thus do not have a strong presumption of denial. Indeed, the United States has exported such UAS to a number of partners. U.S. export policy for military UAS balance the need to maintain the long-standing U.S. commitments under the MTCR while also providing a framework to ensure trusted partner nations have access to U.S. unmanned systems, thus relieving some of the burden on U.S. forces and enabling interoperability with our partners in coalition operations.

Mr. COOK. How will this export restriction impact U.S. companies manufacturing UAVs from competing on the global market?

Secretary KENDALL. The United States has the most advanced Unmanned Aerial System (UAS) industry in the world, and I believe the recent changes in U.S. military UAS export policy will benefit the U.S. industrial base by advancing U.S. industry participation in the UAS world market. The new UAS export policy recognizes that an increasing number of nations are developing, acquiring, and employing UAS. Under the new policy, U.S. export authorities will examine potential UAS sales under the U.S. Conventional Arms Transfer Policy on a case-by-case basis and require receiving nations to agree to the following as a condition of sale: 1) sales and transfers of Missile Technology Control Regime (MTCR) Category I, armed, and other advanced UAS must take place through the government-to-government Foreign Military Sales program; 2) end-use assurances; 3) end-use monitoring; and 4) agreement to principles for proper use. The United States is committed to working with other countries to shape international standards for the sale, transfer, and use of military UAS. Fortunately, other current and likely exporters of MTCR Category I UAS systems are also members of, or have aligned their export policies with, the MTCR.

Mr. COOK. Do you believe it would benefit interoperability with our allies if our nation had a level playing field in order to sell UAVs to our international partners and allies?

Secretary KENDALL. Not only do the international sales of U.S. Unmanned Aerial Systems (UAS) benefit the United States through relieving the burden on U.S.-owned assets during coalition operations, but sales of U.S. UASs increase the opportunities for interoperability with our allies as well. The NATO Alliance Ground Surveillance (AGS) is a good example of how the sale of Global Hawks under a cooperative program will enable interoperability through the potential sharing of Intelligence, Surveillance, and Reconnaissance (ISR) data in future NATO operations. NATO AGS is the backbone of NATO's Joint ISR initiative that will integrate infor-

mation and data from NATO AGS and other national manned and unmanned ISR assets at the Main Operating Base in Sigonella, Italy.

Mr. COOK. Does DOD plan to update the export controls on UAVs to control their export in a manner that improves interoperability with our allies and levels playing field on the competitive global market?

Secretary KENDALL. Not only do the international sales of U.S. Unmanned Aerial Systems (UAS) benefit the United States through relieving the burden on U.S.-owned assets during coalition operations, but sales of U.S. UASs increase the opportunities for interoperability with our allies as well. The NATO Alliance Ground Surveillance (AGS) is a good example of how the sale of Global Hawks under a cooperative program will enable interoperability through the potential sharing of Intelligence, Surveillance, and Reconnaissance (ISR) data in future NATO operations. NATO AGS is the backbone of NATO's Joint ISR initiative that will integrate information and data from NATO AGS and other national manned and unmanned ISR assets at the Main Operating Base in Sigonella, Italy.

