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ACQUISITION REFORM: STARTING PROGRAMS WELL

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTEENTH CONGRESS

SECOND SESSION

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ACQUISITION REFORM: STARTING PROGRAMS WELL

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, Wednesday, February 3, 2016.

The committee met, pursuant to call, at 10:03 a.m., in room 2118, Rayburn House Office Building, Hon. William M. "Mac" Thornberry (chairman of the committee) presiding.

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

The CHAIRMAN. The committee will come to order. The committee meets today to continue to examine the defense acquisition system to improve its agility so that we can get needed capability into the hands of the warfighter faster. Critical to getting our troops what they need is starting programs well, which is the title of today's hearing. Too often programs start the acquisition process in an unstable position, beginning with significant technical and programmatic risks. And, unfortunately, this leads to delays, cost overruns, performance shortfalls, and, as we have seen all too often, cancelation of programs. Many argue that the stovepipe requirements, budgeting, and acquisition processes contribute to this problem and that better aligning these three could shorten, simplify, and improve our acquisition system.

Also it is important to make hard decisions early about achievable requirements that balance affordability, capability, and speed to force. Starting programs well was the focus of a lot of the reforms we made in last year's NDAA [National Defense Authorization Act]. But getting the early steps right is critical to further improvements. This morning, we are privileged to have three witnesses who have had considerable experience in the course of this process. And since all of them have been here to testify before, I appreciate their courage in coming back to testify now that they have moved on to other pursuits. Ms. Fox, Mr. Hale, and Admiral Winnefeld have been very involved in the cost estimation, budgeting, and requirements process. And so we look forward to their insights about further steps that we can work with the Department [of Defense] on to improve—further improve—this acquisition process.

In the absence of the ranking member, I am pleased to yield to the gentlelady from California, Mrs. Davis, who is taking his place today.

STATEMENT OF HON. SUSAN A. DAVIS, A REPRESENTATIVE FROM CALIFORNIA, COMMITTEE ON ARMED SERVICES

Mrs. DAVIS. Thank you very much, Mr. Chairman.

And thank you to all of you. As the chairman stated, I think our witnesses today are very well-suited to address us on those issues, having served in the Pentagon, having been through, I guess, the highs and lows on a number of acquisitions. And we certainly wish that you will share with us as forthright and honestly as you can what goes well and sometimes what doesn't go so well. What are those lessons learned? It is important for us to really take a close look at that and be sure that we are doing everything that is the most efficient and the most agile in terms of acquisition but, at the same time, encouraging people to innovate and even to take risks where that is appropriate. Sometimes the whole concept of being free to fail is something that often is not discussed as well as I think it should. And we know that there are certain areas in which that is more possible and others in which it certainly is not.

I think we also want to get your thoughts on the impact of Congress, where we are constantly changing the acquisition system. We know that each year a portion of the NDAA, known as title VIII, includes dozens and sometimes hundreds of pages of new law. In last year's bill, for example, both this committee and our Senate counterparts added around 75 multifaceted and detailed new acquisition laws. So while this annual effort to fix the acquisition system is well intended, there is certainly a chance that these constant changes in the law could be making it more difficult for DOD [Department of Defense] to make good decisions on programs.

We welcome your input today and look forward to what you have to say. Thank you very much for being here.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you. The committee is pleased to welcome Ms. Christine Fox, who formerly was Director of Cost Assessment and Program Evaluation in the Office of the Secretary of Defense, is currently affiliated with Johns Hopkins Applied Physics Laboratory; Mr. Robert Hale, formerly the Comptroller at the Department of Defense, currently affiliated with Booz Allen; and Admiral Sandy Winnefeld, former Vice Chairman of the Joint Chiefs of Staff, who is currently teaching at the Sam Nunn School and also associated with the Kennedy School up at Harvard.

Again, thank you all for being here.

Without objection, your full written statement will be made part of the record. And now you will be recognized for any comments you would like to make.

Ms. Fox.

STATEMENT OF CHRISTINE FOX, FORMER DIRECTOR OF COST ASSESSMENT AND PROGRAM EVALUATION IN THE OFFICE OF THE SECRETARY OF DEFENSE

Ms. FOX. Thank you, Chairman Thornberry, Representative Davis, and distinguished members of this committee.

First, I appreciate all of the work you have done and continue to do on acquisition reform. And I appreciate the opportunity to speak with you today on this important topic. During my tenure in the Department of Defense, my colleagues and I spent considerable

energy to improve the affordability and feasibility of the major defense acquisition programs. In my current position at the Johns Hopkins University Applied Physics Lab, I have the pleasure of working closely with scientists and engineers who are innovating with technologies that will enhance our Nation's security.

My full statement has been submitted for the record. I would like now to summarize briefly its major recommendations.

First, I would emphasize the importance of continuing to require independent cost estimates for major programs. When I became CAPE [Cost Assessment and Program Evaluation] Director in November of 2009, many weapons programs were in the red for both cost and schedule, some of which eventually breached Nunn-McCurdy thresholds. The reasons are varied and unique to each program. But a common factor was a strong want and need for the program, coupled with institutional incentive to be overly optimistic. In short, they thought: This time will be different. But these optimistic assumptions rarely became reality.

The Weapon Systems Acquisition Reform Act of 2009 changed all that by forcing the Department to have an independent cost estimate developed by CAPE for all major program milestones and its certifications for programs experiencing cost overruns. No longer could the Department base program decisions just on the projections of a program's most ardent advocates. Sustaining the progress of recent years will be all the more important as the Department implements the acquisition reform provisions of the fiscal year 2016 NDAA, which moves milestone decision authority to the military departments.

One recommendation I can offer this committee is to amend the law to ensure that CAPE continues to provide independent cost estimates for all programs for which they currently have responsibility, regardless of where the milestone decision authority resides. Another key factor in starting programs well is getting the requirements right. My colleague, Admiral Sandy Winnefeld, when he was the Vice Chairman of the Joint Chiefs of Staff, took significant steps to ensure that CAPE and AT&L [Acquisition, Technology, and Logistics] had a voice as requirements were debated at the Joint Requirements Oversight Council. For example, technology maturity is now as much a part of the requirements discussion early in a program's life cycle as is cost and schedule realism. This important collaboration really should continue.

With respect to the acquisition workforce, while much progress has been made, I am still concerned that too often program managers are incentivized to get their program to the next milestone, regardless of whether it should go forward. No one wants to throw up bureaucratic roadblocks and unnecessary delays, but program managers must have the experience and confidence and encouragement to stand up and tell hard truths when needed, that it is not ready to go to the next milestone, or maybe it is never going to be ready or even we don't need it anymore.

In all, process improvements led by AT&L and the Joint Staff are allowing us to design and field programs more efficiently and effectively. But it still takes time. In the fiscal year 2016 NDAA, the Congress has made important changes to facilitate rapid prototyping and fielding of new capabilities. We must also consider ways

to develop DOD unique technologies and keep them at the ready, on the shelf for the day when the Nation has an immediate need and/or when the budget environment changes, as it certainly will—I hope.

In addition to working with industry to prepare for these transitions, the promise of advances in manufacturing would give us the ability in the future to take a technology from design to production on demand in the future. We must continue to pursue these types of initiatives.

Now, to be sure, we wouldn't accept a rapid prototyping tech on-the-shelf approach to build, for example, the strategic nuclear submarine force. For those large programs, we are pushing out risk and are increasingly following a realistic and achievable path to procurement.

But what if we are not taking enough risk in our technology development? In today's world, our potential adversaries are rapidly fielding new technologies that might require us to push ourselves in certain select areas. Perhaps we need to knowingly take risk. This should be a new category of acquisition programs in which we push the boundaries of our technologies with full awareness and acceptance of the inherent cost and scheduled risk.

In my view, this is an acceptable approach only if there is an agreed upon need, and we are candid in our assessments of the risk. In closing, the worst outcome in all of these areas would be for the Department to be allowed to go back to the days of believing in magic with regard to cost and schedule. With prudent risks and proper controls on cost estimates and requirements, the Department's acquisition system will provide better outcomes for both the warfighter and the taxpayer. Thank you again for the opportunity to appear before you today.

[The prepared statement of Ms. Fox can be found in the Appendix on page 35.]

The CHAIRMAN. Thank you.

Mr. Hale.

STATEMENT OF ROBERT HALE, FORMER UNITED STATES UNDER SECRETARY OF DEFENSE (COMPTROLLER)

Mr. HALE. Chairman Thornberry, Mrs. Davis, and all the members of the committee, I appreciate the chance to be here.

I will talk today about the budgetary aspects of acquisitions, starting with discussing acquisition unit costs. But I will focus particularly on the need to control operating and support costs. It is so important that I believe it should be the next frontier for acquisition reform.

Before I turn to those topics, I would like briefly to comment on the effects of budgetary turmoil in the Department of Defense. Since 2010, DOD and many other agencies have seen near constant budgetary turmoil: sequester, shutdown, furloughs, continuing resolutions. We all know the list. And it is frustrating. It has bad effects on program management in the Department, takes away time that senior leaders could better spend on things like acquisition reform. It wastes money. It damages the morale of DOD employees, especially civilian employees, who make up a lot of the acquisition workforce. I would ask everyone on this committee, I would plead

with you to do all you can to get back to a more normal budget process.

Let me turn now to holding down—I will start with—unit acquisition costs by starting programs well. For many years, DOD has seen relentless growth in the unit cost of its programs. It is typical for, as we go from one generation to the next generation of a weapon, to see growth of a factor of two or more, even after adjustment for inflation. Some of these higher acquisition costs led to improvements in capability that were needed to keep up with potential adversaries. However, the higher acquisition costs, especially when you combine them with the operating and support costs I am going to discuss in a moment, forced the Department to reduce the overall size of its forces. If we want to avoid further force cuts, then we need program managers to make hard tradeoffs early in the life of a weapon, first, to set baseline costs that are consistent with likely future budgets and then to try to ensure that there isn't unanticipated growth in costs above those baselines. Both of those efforts are needed.

In recent years, the Department has made significant and I think commendable progress in holding down unanticipated cost growth. That cost growth has slowed. We have seen fewer violations of the Nunn-McCurdy thresholds. But the Department also needs to make those hard tradeoffs to get reasonable baseline costs to start with. That is why I am glad to see that DOD is establishing what it is terming affordability caps. It described them in the September 2015 report on the performance of the acquisition system. These affordability caps cover both acquisition costs but also sustainment or operating and support costs. They cover the full life-cycle costs of a weapon system. According to that September 2015 report, we have seen 29 caps established for major defense programs, organizations set up in the services, as well I believe as in CAPE to monitor efforts to do this. I am hopeful that DOD will use these affordability caps as a vehicle for continuing to monitor and try to hold down acquisition cost, so long as we are consistent with assumptions of what we need to meet the threats.

I have focused so far on DOD's efforts. I would like to note Congress is also playing a role here, especially in last year's authorization bill. You made a number of changes, some of which may help hold down acquisition costs. I note, for example, involving the service chiefs more in the requirements process, they at least will have a sense of budget problems.

Let me turn now to operating and support costs, which are very important to the Department from a budgetary standpoint. Operating and support costs make up more than half of the total cost to buy and operate a weapon over its life cycle. They also make up today almost two-thirds of the total defense budget. They are so important or controlling them is so important, as I said, I believe they should be the next frontier for acquisition reform. In recent years, these operating and support costs have grown sharply, even as force size has declined. If you take operating and support costs—and by that, I mean the dollars in the operation and maintenance appropriation, military personnel—the adjustment for inflation, take out wartime or OCO [overseas contingency operations] costs, they have grown by 20 percent since the year 2000. At the same

time, the size of the military force, as measured by the number of Active Duty personnel, has declined by 4 percent. So what is causing—and I should say this is a trend that occurs in all the military departments. And it didn't just start in 2000, it has been going on for decades.

So what is causing operating and support costs to grow and what can DOD do about it? Some of the growth in these costs is not directly related to weapons. It is related to programs or issues like military compensation and health care. Working with the Congress, the Department of Defense has had significant success in slowing the growth in healthcare costs and compensation costs. More effort is needed. I am pleased to see that Congress and key Members have indicated they will tackle military healthcare reform in this session or an upcoming one. They also need to look at hard issues, like closing unneeded facilities and continued efficiencies.

A substantial part of that operating and support growth can be tied directly to weapons. So while DOD has devoted much attention to controlling and holding down acquisition costs, it has not yet paid as much attention to holding down operating and support costs. The new affordability caps, which I mentioned earlier, include, they call them sustainment costs, but it is essentially operating and support costs. I very much hope they provide the Department with a vehicle for working to control these costs because of their budgetary importance.

Congress can also play an important role in slowing the growth of operating costs. For example, Congress convenes hearings. I am amazed I would come here and ask for a hearing, but I am not in the House, so I wouldn't get away with that. I think it would be especially important for this committee and other defense committees to hold hearings on the implementation and enforcement of these affordability caps with a focus on the operating and support portions. Congress can also use reporting requirements to shine a spotlight on operating and support costs. The Nunn-McCurdy legislation requires reporting on weapons programs that breach thresholds for unit acquisition costs. And I know from personal experience, sitting in staff meetings, these focus the attention of senior leaders. It is time to consider similar reporting requirements for operating and support costs.

Mr. Chairman, members of the committee, in sum, program managers supervising DOD weapons have a lot on their management plate, especially early in the life cycle of a weapon. But during that period, they do need to consider tradeoffs between requirements and costs and pay attention to these affordability caps if we are to sustain reasonable levels of forces. And they particularly need to focus, in my view, on operating and support costs. It should be the next frontier for acquisition reform. And given its budgetary importance, it is critical that we conquer this frontier.

Mr. Chairman, that completes my remarks.

[The prepared statement of Mr. Hale can be found in the Appendix on page 46.]

The CHAIRMAN. Thank you, sir.

Admiral.

STATEMENT OF ADM JAMES A. WINNEFELD, JR., USN (RET.), FORMER VICE CHAIRMAN, JOINT CHIEFS OF STAFF

Admiral WINNEFELD. Good morning, Chairman Thornberry and Mrs. Davis and members of the committee.

Believe it or not, it is good to see you again. And I thank you for the opportunity for me to be able to contribute my thoughts on the important topic of acquisition reform. It is also a pleasure to appear alongside two of my longstanding former colleagues of whom I think so highly. As we approach this very important topic, I think we should be mindful of the fact that acquiring the tools that DOD needs to protect the American people is not an easy task. We are talking about conceiving, designing, budgeting, prototyping, building, testing, adjusting, and evolving the most advanced technology around and not doing it on the scale of the iPhone.

It isn't easy. And it isn't cheap. And it isn't always fast. Though some nations do it faster than we do and some do it for less money, nobody produces a better final product than the United States. And when some pretty capable people from both government and industry are trying to do this immensely complex task in a cost-competitive environment within a chaotic budget environment with a rapidly evolving threat and quickly evolving technical landscape, it should come as no surprise that we sometimes have cost, schedule, and performance challenges.

That said, there is no question that we can do better. And we are doing better. But I also applaud the committee for the attention that you are giving in the interest of good stewardship of our taxpayer dollars and our readiness to fight. My participation today really regards the front end, the requirements process, and, most specifically, the joint requirements process, where I believe we have made some pretty solid progress. Specifically, during the 4 years that I was privileged to serve as vice chairman and oversaw this process, we did the following: We sped up the joint document process by dramatically shrinking the size of our documents and by compressing the time allowed for our stakeholders to review them. For example, initial capability documents that were once 2- to 300 pages are now limited to 10 pages. What once took 6 months or more to approve in an initial capability document is now limited to 97 days, which sounds like a lot, but there are a lot of wickets they have to jump through. We also worked hard to inculcate the provisions of the 2009 Weapon Systems Acquisition Reform Act [WSARA], which was a good piece of legislation, into the requirements process, including bringing cost, schedule, and technical maturity considerations into joint requirements deliberations. We actually considered those as factors. We shrank the Joint Requirements Oversight Council meetings from an auditorium full of people to a much smaller group in a much smaller room. And we really leveraged what the WSARA asked us to do, and that is our outside experts, our AT&L experts, our comptroller expert, our USD [Under Secretary of Defense] policy experts, and CAPE and DOT&E [Director, Operational Test and Evaluation] experts, specifically asking for their advice in every single meeting.

And I think they would tell you, as Ms. Fox said, that they felt like they were included in that process. We formalized the joint emergent operational needs and the joint urgent operational needs

requirements processes and executed them both with discipline and dispatch, taking only 15 to 31 days for the whole requirements process to run its course. We worked with our CAPE partners to speed up the analysis of alternatives processing, including experimenting with doing the work ourselves rather than putting it out for contractors to do it. Whenever it was appropriate, we took a portfolio view rather than looking at capabilities in stovepipes. And we started including special access program capabilities into that process, which was very important. And while ensuring the COCOMs [combatant commands] knew that they were welcome as members of the JROC [Joint Requirements Oversight Council], we also imposed discipline on their integrative priority lists to ensure they reflected capability requirements, not just requests for more capacity. During my tenure, not a single joint requirement group, in fact, working with program offices, we actually trimmed a few that made sense for the warfighter and saved money and heartburn in the process. We even instituted quarterly meetings among the requirements, acquisition, and budgeting leadership. But because there were so few issues because we think we were getting that process under control, we really never had a contentious discussion. And we were transparent. To my knowledge, we never once have turned down a request from Congress for a copy of a JROC document, which I think is important.

I don't want to monopolize the time by talking too much in detail about the provisions of the 2016 NDAA. There are some good ideas in there. You have done some good work. There may be a few that are legislating what is already working, but that is okay. I would say that we were asked to have the JROC strongly consider the service chiefs' views on the requirements process. And I am not sure where that came from, because it is kind of like the GEICO commercial: If you are at JROC, it is what you do, is consider the chiefs' views. That is why it exists.

I also support the strong service chief role in the milestone decision process. But I would flip it on its ear and say this is less about giving them something they never had, and I think this is what you intended, by the way, less about giving them something they never had than it is holding them accountable for something that they already have and could do any time they wanted. And some of them were actually good at that. I couldn't agree more with the initiatives you have to enhance rapid prototyping. It is the only way we are going to keep our competitive edge in a dynamic world. And without causing more confusion in the process, I think we need to look deeper into how we can institutionalize rapid prototyping so we don't end up with a thousand different flowers blooming, and we have a little bit of control over the process, which I think we have, but we might be able to do better. I would like to see some funds specifically set aside for and that perhaps even for the deputy secretary and the vice chairman to control those funds, because there are sometimes things that the joint world needs that the services just don't love enough to make it into their budget process. But I also would tell you that I think it would be a mistake to fund something like this with a penalty for cost overruns. For one thing, we would like to get rid of cost overruns, which would mean there would be no money for such a program. And for

the other thing, I do believe it could cause some unintentional bad behaviors if you start penalizing programs for cost overruns. We want to limit those as much as we can. But you could have some odious behavior in the process of trying to do that. Absolutely agree with the legislation's emphasis on better development of acquisition professionals. I would ask that we all be cautious about adding more reporting requirements. We have enough paperwork. And I also think we need to keep a sharp eye on the testing process. I would like to make just a couple of final points.

First, I think we could grant more flexibility to the Department with full visibility to the Congress. That would help. We need a little more authority I believe for reprogramming. But, more importantly, I think we could give DOD some upfront discretionary money for starting programs, obviously, again, with strict accountability to Congress, that would dramatically speed time for the initial development of a system before an appropriation cycle catches up with it. We are going to have to have that kind of flexibility if we are going to keep up with countries that don't operate under the same model we do.

And, finally, back to who I started with, I think we should be mindful of the fact that it takes a while to see the effects of change in this business. I think Congress has made some very good improvements with the WSARA and the NDAA most recently. We have also made some very good improvements inside DOD with Better Buying Power and the like. We should take a deep, though very watchful, breath and let the good work of the past few years in reforming acquisition take effect. We have made a lot of progress. Just look at the *Virginia*-class submarine as an exemplar. Let's see how the new system works for us.

Once again, I want to thank you for the opportunity to be here this morning. And I do look forward to your questions. Thank you, sir.

The CHAIRMAN. Thank you.

Admiral, there is a book that suggests that if you are tackling complex problems, you ought to start with why: Why are you doing this. What is this about? And both you and Ms. Fox kind of touched on this. The testimony we have had before this committee over the last year is that probably never before in the country's history have we faced so many complex national security challenges all at the same time. While technology evolves at an increasingly rapid rate, while key competitors are making investments to deny us advantages, leading to the Third Offset and other initiatives at the Department, and, essentially, that the way the world is and the threats are moving is faster than our processes internally. So do you share that concern? Because to me, that is the why—we want to save money. You know, we also need to get enough stuff to matter, not just have a handful of items because of cost overruns, but having the agility to keep up with technological changes and adversaries that are moving much more rapidly in some cases than we can is the bottom line of the why, to me, on this acquisition. I would like, because of the position you have held, I would like to hear your views.

Admiral WINNEFELD. Chairman, I am in violent agreement. I think you are absolutely spot on in that regard. We are going to

have to be agile and quick without, you know, a haste-makes-waste phenomenon injecting itself. But we are going to have to be very agile here. And I think there are two—even though we are doing better by the way—I think there are two contributors to why we might not be as agile as we would like to be. One of them, candidly, is recognizing that change needs to occur in the way we approach warfighting. If somebody is going to try to deny us access to their space, we may have to try a new idea in there. And I think that is very hard for the services to do. Richard Pascale, who wrote "Surfing on the Edge of Chaos," said equilibrium is the precursor to death. And, in fact, if we find ourselves in stasis in our operational concepts and we don't sort of wake up and say, "You know, we need to change a few things," then it is our own fault for doing that.

And then the second piece is having the mechanisms in place so that when you do recognize change is needed, that you can make it happen quickly. And I think the Department is pushing hard for that. And Congress is pushing us to push hard for that. And that is the right thing. I just want to make sure we get a good, stable mechanism in place where we can actually make that happen in the right way. And there are a lot of—the Air Force has a terrific Rapid Capabilities Office. There is a tremendous effort going on up in the Office of the Secretary of Defense with a little group that works up there. The vice chairman has a small group who works for him in trying to rapidly generate SAP [special access program] programs. We ought to just make sure that we empower those and that we keep an eye on them and do the best we can to make sure they are doing the right things.

The CHAIRMAN. Mr. Hale, Ms. Fox suggested that maybe we need a new category of acquisition because maybe we are not taking enough risks, thinking about experimentation and prototyping. I think the admiral talked about prototyping too.

Okay. You had to deal with the budget aspects of this. So what sort of challenges would we face if we thought that that was a good idea, that we needed to take some more risk in experimenting with technological—not just new technologies but their use?

Mr. HALE. Well, I don't think the mechanical problems would be an issue, Mr. Chairman. I mean, you can authorize and appropriate funds in the category as you wish. And I don't assume you have to make major changes in the budget. Moreover, I suspect that usually programs are pretty inexpensive when they are starting, that this would not be a large budget issue. The problem comes when you get to the full development and especially the procurement, the budget problems. So it seems like a reasonable thing to me, and I don't see—if there is agreement in Congress and hopefully also in the Department, I don't see why there would be budgetary obstacles that couldn't be surmounted.

The CHAIRMAN. I guess my thought was some of the pressures you have been under were, okay, everybody is under budget pressure; you see a pot of money, and everybody starts grabbing for it. So it is not a technical or a mechanical issue. It is more of a cultural question.

Mr. HALE. And a senior leadership issue. I mean, if a secretary or a vice chairman and a chairman want these programs, and they

have a rationale for them, they will survive the budget process. I think innovation is probably doing pretty well right now under Secretary Carter. I listened to his speech yesterday. He obviously feels pretty strongly on this issue. So if the senior leaders want this, I don't see budgetary obstacles now. Now, the problem is going to come when you get things out of that you want to buy. And if that increases the number of those without offsets or if we don't succeed in things like controlling operating and support costs, then we are going to have a problem but not just the starting.

Admiral WINNEFELD. If I could add very, very briefly. One of the things that kept me awake at night in that regard was: Where is the idea out there that I am not hearing about that I can empower? Because Bob is right, the vice chairman and the deputy, we can make things happen. It is just: Where is that thing being suppressed where it isn't getting the voice that it should have?

The CHAIRMAN. Good point.

Ms. Fox, do you see other challenges with a new category of acquisition to encourage experimentation and prototyping like you suggested?

Ms. FOX. I do. I think the biggest challenge, honestly, is this human nature self-incentive to be overly optimistic. And so I really do believe that if we were to follow my recommendation, it would be vitally important that the Congress continue to demand, in this case in particular, those independent cost estimates. And a good independent cost estimate, and I think the team at CAPE is excellent, needs to say: Hey, you know, there is a lot of risk here. But if you think back to some of our greatest programs, I will just take quickly GPS [Global Positioning System] as an example. We started with a program called Transit, but we quickly saw that we needed to move to something that gave us three-dimensional position information. Went to GPS, it was actually a high-risk program. And that program was almost canceled multiple times because of the risk. I don't think we were straight up at the beginning about the risk. If we all agreed it was worth it—and I think it is pretty clear that it was—then perhaps we would have been able to go forward without the constant risk of cancelation.

The CHAIRMAN. Thank you.

Mrs. Davis.

Mrs. DAVIS. Thank you, Mr. Chairman.

I want to go back just a second to the changes in the law and the independent estimates and just to drill down a little bit further because I think, Admiral Winnefeld, you spoke, maybe it was Mr. Hale, that talked more about the operation and support costs, the difficulty in getting those right. What is missing as we look at those that we need to change or build on?

Ms. FOX. Let me, if I could just, the Weapon Systems Acquisition Reform Act did require CAPE to stand up an operating and support cost cost-estimating capability. And that is in progress. And from the enactment of WSARA, the ultimate operating and support costs of a program has become a part of the defense acquisition boards, an explicit part. So the Congress legislated that we start doing this a while ago. The Department is responding. But to echo something Admiral Winnefeld said: Sometimes these things take time. And developing a good historical basis for how technology equates to op-

erating and support costs in the fielding, it is going to take time to build up that technology, I am sorry, that database so that we understand the implications of technology.

So I think work is in progress, not at all to be confused with we have solved it. But the mechanisms are in place. The focus is there, more than it was. Mr. Hale talked about the affordability costs, caps. I think that is a piece of it. And I agree that it needs to be a part of how Congress looks at programs, such that we are looking for that long-term implication.

Mrs. DAVIS. When we think of innovation and we are often thinking about technology, per se. And having fresh eyes on that is always helpful. I am wondering in this area as well as perhaps in others, are we really going outside the Pentagon community, if you will, to bring that in? Even in this area, where private industry is looking out at it a whole different way, have we done as much as we can in that area?

Ms. FOX. No, absolutely not. And I think a key to bringing in those ideas as innovative ideas on how to get O&S [operating and support] costs down is it is tied back again to requirements. For a long time, it was performance that drove requirements. And you end up with a very high-performing jet engine, for example, but it uses a lot of fuel. So if you now crank into requirements, as Admiral Winnefeld clearly just testified he started to do, an eye towards that, then you start to mobilize industry and commercial ideas for how to innovatively get high-performance engines with lower fuel consumption. That has to be a part of our innovation process.

Again, I think it is starting. But, again, much more does need to be done.

Mr. HALE. May I add just one point? I agree that it is starting. I also think there is a human nature problem here. If you are a program manager early in the life cycle of a weapon, you want to get this system going. The key to that is to keep the acquisition costs reasonable so that it gets through the early stages. The operating and support costs are 5 to 10 years out. They are somebody else's problem. And I don't want to be meanspirited and suggest they are not thinking long range. But I do think they tend to focus more on the acquisition. I think we need pressure from within the Department to pay more attention. I certainly didn't see the same interest in operating and support costs as I did, the same concerns about them as I did in acquisition and maybe something like exception reporting a la the Nunn-McCurdy requirements. That said, I would first be quick to acknowledge—and conversations I have had with Frank Kendall I think bear this out—it is hard to estimate operating and supports costs early on. You are 10 years out. You have only a general idea of the design of the weapon. This isn't easy. But I think it is not impossible. And I think we need to continue to pay attention to it and probably pay more attention.

Mrs. DAVIS. All right. Thank you.

And perhaps, again, getting those additional eyes on it, if that can be built in, to some extent. Sounds like that would certainly be helpful. Just very quickly, one of the differences, perhaps, we have had in moving forward is the difference in classified versus nonclassified acquisition systems, et cetera. Do we handle them differently? Is that rapid innovation more cultural with classified sys-

tems and less so? And what could we learn from that? How do we fuse those in a way that is responsible?

Admiral WINNEFELD. I think colloquially the way I would describe it is that the classified programs have a lot less hair on them that has to be accounted for, fewer critics that have visibility into it that can slow a program down. Yet, they seem to be fairly successful programs most of the time, not always.

Mrs. DAVIS. What would do you do?

Admiral WINNEFELD. Without getting into specifics, I think you could, it might make sense maybe to demand or encourage a study that does compare what are the characteristics of a classified program acquisition compared to an unclassified? And what can you bring out that is legal, doable, makes sense in the unclassified world, and what can't you bring out? Some of those things you probably couldn't do. But I think it is a worthwhile effort to examine that. Because we all have this instinct that the classified programs just work much more smoothly.

There are fewer people involved, fewer inboxes, you know, that sort of thing.

Ms. FOX. May I add to that? While I agree that they tend to be more rapid, right, because there are fewer people involved, I think the CAPE perspective is that there have been some fairly impressive failures in that category of development as well. So it isn't a total panacea. And I just would add that in the comparison. I think that the CAPE roles of looking at these systems is still important. And in most cases, but not all, CAPE did have the opportunity to look at the highly classified programs in much the same way as it looked at the other programs. But Admiral Winnefeld is correct in that we don't have these large meetings where everybody is free to opine on the value and virtues of the program, which does make it more rapid.

Admiral WINNEFELD. And to Ms. Fox's point on failures, I mean, one of the reasons sometimes those programs are classified—it is not the only reason—is because they are so advanced. And anything that is really advanced is going to be a big challenge. So there have been challenges in those things. But there is just less bureaucracy associated with those programs.

Mrs. DAVIS. Thank you.

Thank you, Mr. Chair.

The CHAIRMAN. Mr. Conaway.

Mr. CONAWAY. Thank you, Mr. Chairman.

Mr. Hale, while not directly related to acquisitions per se, all of that evaluation data comes from the books and records of the Department of Defense. And I would be remiss if I didn't ask you your thoughts on auditing the Department of Defense, in particular the work that would have to get done to audit the rollup of DOD writ large, as opposed to the individual pieces that are going on, and then visit with us a little bit about your perspective on transitioning to new leadership next year and the risks to maintaining the pace and the momentum that is currently I perceive to be going on with respect to the audit role.

Mr. HALE. So I never escape audit, is that the——

Mr. CONAWAY. That is exactly right. No good deed goes unpunished.

Mr. HALE. So I remain fully convinced that largely for public confidence reasons, it is very important for the Department of Defense to achieve auditable financial statements. I am not involved in it day to day, but I believe they are making progress. I am particularly pleased that they have auditors now involved in three of the services, and I think are close on the Marines for at least portions of their budget statement. And I think it is very important that we get outside auditors involved. The Department will make progress and learn more. You asked about the rollup. I don't think—I long ago learned that this is an esoteric area where I always need help. And I don't have it anymore. But I don't think the rollup problem would be as much of a problem with the Department of Defense because they are carving up the pieces in a way that doesn't overlap. It will be a major problem for the government as a whole if DOD does get close to an audit, and you want to turn to a full audit of the government. Because there are a lot of exchanges of money that will have to be sorted out.

Let me come to your last question, which I think is critical. There are several things Congress can do to help in the audit area. One is to continue constructive hearings. And I give this committee and particularly you, Mr. Conaway, a special credit for the hearings and attention to the issue. Also be patient. I wish DOD had started 15 years ago at this, but they didn't, at least not in the same way they have done in the last few. It is going to take a number of years to actually get there. There are significant problems. The biggest thing that worries me, though, and where you can help is the transition, as you mentioned, to the new group of senior leaders. We need to have a situation that prevailed during my tenure there when the Secretary of Defense and the deputy cared about this, when it was important, obviously, to the comptroller, to the new Under Secretary of Management, and to the service leaderships because they have a lot of the action now. We definitely need the new crop of political appointees to understand this is important. It would be easier for your Senate colleagues to do this because they will need to confirm them. But you can definitely, in my view, play a role by expressing your interest in letters and meetings and perhaps asking questions at hearings once these people get confirmed. So we need at least one more administration and probably a couple to actually get through all of this. And we need to make sure that it remains a high priority. And you can play a role there.

Mr. CONAWAY. Thank you.

Admiral, could you talk to us how, at your level, the Joint Chiefs, how that, coming from the top with respect to getting the audit done is communicated to lower levels of the organization? How did that work while you were there?

Admiral WINNEFELD. I think the chiefs are supportive, very much so, of the audit requirement, the need to be able to audit. Most of that is done by, candidly, the civilian comptroller side of the service secretariats and that sort of thing. So I don't know that the chiefs have their hands on that machinery. But my sense is that they support the need to do that. And not only because of a public accountability issue where we have to really be able to show the books, but it helped them manage their own world. I would

point to the Navy, not because I am a former Navy guy, but their former vice chief, Admiral Ferguson, he would hold contractor court where he would bring in folks and really rake them over the coals to make sure that we were getting the right bang for the buck out of those contracts. And that is the sort of thing that will benefit from having much cleaner visibility into how the money is being spent. They are supportive of it, but they don't really have their hands in it.

Mr. CONAWAY. But without that support, though, those civilian folks won't react the way that they ought to. Well, thank you all for your longstanding service to our country.

And I yield back. Thank you.

The CHAIRMAN. Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman.

I am going to start with a rhetorical question—it is one of those to make a point. And this is not a criticism of the contractors or of the Navy or of DOD generally. But Next-Gen Jammer is finally—we are moving forward on that. But that thing has been Next-Gen so long, I am wondering if it should be called Now-Gen or Previous-Gen Jammer. And the point is this isn't even a large submarine or aircraft carrier. This is a smaller pod to put on a platform. And it still took and is still taking a long time to get to the point where we can deploy it. But we are getting there. And it is great. So I want to be clear about that. But the point I want to make is that, big or small, it seems that the acquisition process takes a long time. And so for you, Ms. Fox, looking at MDAPs [major defense acquisition programs], is the MDAP problem a platform problem? Is it a program problem? Are there certain things in MDAPs that drive budget and timelines over set budgets and timelines? Are there things in MDAPs that actually get done on time and on budget?

Ms. FOX. Thank you. On an example like Next-Gen Jammer, where I completely understand your observations and frustrations, it is a capability we needed. But when it was started, it was not realistic on the technological risks. And so we are getting through it. And we are going to have a capable jammer. And we need it. But some of the advanced electronics and the need to miniaturize them and the threat advances that have happened during the course of that program, all of which combined to make it take longer than we wanted. So I think that the MDAP program, again, it all starts well when we all have shared expectations of both need and risk. And that gets to time and cost and the technological risk. And that is what I think we have worked hard to improve. But in places like the Next-Gen Jammer, we did not cancel that program. We have worked through those problems. But that is the big thing. MDAPs tends to last for a very long time. So it is really important, in my opinion, that we go through the process to get to a system that we want to last for a very long time that is sustainable affordably and upgradeable. Those are all aspects of MDAP that need to be considered and that do take the time. But I think we can avoid our disappointments if we are more realistic at the beginning.

Mr. LARSEN. It seems to me that the problem is part of what makes MDAP sustainable is us. It may not be affordable, but we

sustain it. That is, we end up rewarding it being over budget and not meeting the schedule by keeping it going because we need it. So there is no incentive on the front end to get it as right as we need it if we continue it despite what happens later.

Ms. FOX. You know, I think that, my opinion, the Nunn-McCurdy process has actually done a lot to push on that problem. I can tell you right now, so from a CAPE perspective, we didn't hate Nunn-McCurdy. We thought they forced a process of looking at things critically. Of course, CAPE had a big role in Nunn-McCurdys. And I think we try hard to play that role. But I can tell you, the services hate Nunn-McCurdys. I mean, they will do anything they can now to get a program started such that they don't Nunn-McCurdy because of the challenges of starting over, right, the assumption of cancelation. And that has made a big difference. So, again, I think there are things now in place that help us with the very problems that you are targeting that we need to continue to push on but that over time are making a difference. And I, at least, certainly saw that in my time. When I got there, we had a lot of Nunn-McCurdys to work through. It took a lot of time. It forced us to scrutinize these programs in new ways. There are not very many now. People don't like them. It is good. They shouldn't.

Mr. LARSEN. That gets to my question about whether or not you can build affordability as a goal. That is more than rhetorical.

Ms. FOX. Well, it requires you to be willing, throughout the entire process, to trade requirements for affordability as you develop the program. And that is exactly the collaboration that Admiral Winnefeld talked about, that I referred to, and that I think is going on with these affordability caps and must continue.

Mr. LARSEN. All right. I think I heard you use Nunn-McCurdy as a verb. So I guess we have advanced a long way if it is now a verb.

The CHAIRMAN. Mr. Wilson.

Mr. WILSON. Thank you, Mr. Chairman.

And thank all of you for being here today. I appreciate the strong commitment of Chairman Mac Thornberry on acquisition reform and his persistence. As chairman of the Emerging Threats and Capabilities Subcommittee, my greatest concern has been and will be getting the newest and most effective technology to the warfighter to protect against cyberattacks. Do you believe that our current construct allows for this? And how do you believe rapid acquisition might play a role in achieving this goal? And also does this promote public-private cooperation?

Admiral WINNEFELD. I would say that we, sir, we have built into the requirements process the, essentially, cybersecurity of programs, that they be resistant to that. I worry less about the program itself than I worry about the people who are building it and their networks candidly. I think we are making some progress in that regard to hold our cleared defense contractors accountable for the security of their networks so that we don't lose our technology to a potential adversary. But we are very mindful of the need for—and not just Internet cybersecurity, I mean, the overall security of the electronics in that platform, which could be potentially quite vulnerable. So we are paying attention to that. I presume that is continuing on after I have left. But it is a valid concern. It is a sin-

gular vulnerability that we have—it is a new vulnerability that we have to watch for.

Mr. WILSON. And I appreciate the efforts of Secretary Ash Carter to visit Silicon Valley, to meet with leaders of IT [information technology] as to what can be done to facilitate, again, the most effective and up-to-date capabilities. And for each of you, could you give us an example of the best practice that the Department of Defense acquisition community should be following to improve how they start programs? And can you name a program where they—have actually been used in practice? Beginning with Ms. Fox.

Ms. FOX. I believe that, as I have said, the best practice is honest realism. And I think that the, I am going to say this probably with some trepidation, I think the process we have attempted to use to start the new bomber really worked hard at looking hard at requirements, need, and affordability. It was to my, in my experience, in my time, the first one to have an affordability cap written into the direction from then Secretary Gates to the Secretary of the Air Force. It explicitly directed this tradeoff throughout the course of the program between requirements and costs. So I think there were some efforts taken there that have the potential to have started that program well. We will see as it goes forward.

Mr. WILSON. Thank you.

Mr. HALE. So I will stay on my soapbox and say I think the best practice needs to continue to look for better ways to control the growth in operating and support costs, not that the Department hasn't done anything, they definitely have. And the affordability caps provide a forum for that debate. I can't tell you a program where this has worked well. I am not close enough to it now. I can tell you one where I think it is important and that would be the Bradley fighting vehicle replacement. As the Army develops this, they will buy it in, hopefully, very large numbers. And so it will have some substantial effects on operating and support costs. So I think that is one way they definitely need to pay close attention to the affordability cap in the operating and support costs portion of it.

Admiral WINNEFELD. So there are probably a number of best practices to talk about. In regards to the ability to field things quickly when the warfighter needs them, we have instituted the JEONS and JUONS process. The JUONS is a joint urgent operational needs statement. I will give you a couple of examples of that. During the Ebola epidemic, Transportation Command submitted a joint urgent operational needs requirement in October of 2014. That was validated as a requirement by the JROC in October of 2014. And it was delivered in March of 2015. And that gave us the capability to transport Ebola patients safely on DOD aircraft. Another example of that would be a full motion video dissemination system that was submitted by CENTCOM [Central Command] in December of 2014. It was validated in January of 2015, within that 30-day window I talked about. And its initial operational capability was May of last year. And they have three systems up and running as of September of last year. So that is the urgent side.

The middle ground, which is really sort of challenging for us, is the joint emergent operational needs statement, which if something is, you don't have to have it tomorrow to protect a warfighter in

something that is ongoing, but this is an imminent conflict where we really need to get something moving quickly. And we have responded to a Central Command request for real-time ID [identification] capability that was validated in November of 2014. And its initial operating capability will be this June, within this 2-year period. So I think what we are doing is we are working hard to unveil best practices as we find them and to try to accelerate things when the warfighter really needs it.

Mr. WILSON. Thank you very much.

The CHAIRMAN. Ms. Bordallo.

Ms. BORDALLO. Thank you very much, Mr. Chairman.

I guess my question will be to former Deputy Secretary Hale. I look forward to seeing progress in fielding the Long Range Strike Bomber, the capability that we certainly need. So as we look forward in the acquisition process, can you speak to how we can apply lessons learned to keep what will be a long-term program in check, time and costwise?

Mr. HALE. I think I am going to defer to the former Deputy Secretary, Ms. Fox.

Ms. BORDALLO. Ms. Fox.

Ms. FOX. Thank you. I agree completely about the importance of the new bomber. And as I referred to a minute ago, the initial start of that program specifically suggested that the Department needs to debate throughout the course of the program affordability and requirements to make sure the Department gets the capability it needs but that it stays affordable, such that the Department can buy it in sufficient numbers. So we have both capability and quantity. And I think that the most important thing is that dialogue continue. I think that the 2016 NDAA has things in there that will enhance the dialogue or, you know, Admiral Winnefeld pointed out that opportunity already existed. And I completely agree with that. But I think the legislation pushes more for that kind of collaborative dialogue throughout the course of the program.

But the Joint Staff, the military department, and OSD [Office of the Secretary of Defense], and industry needs to constantly be talking about these tradeoffs as it goes forward such that we get a bomber, a timely bomber, that is also capable and is affordable enough to buy in numbers.

Ms. BORDALLO. I don't know if you mentioned the time, but I also asked for costwise.

Ms. FOX. So there is actually an affordability cap on the bomber, or at least there was when I was there. I can't say that I am current anymore, but there was a cost cap on that, and that is directly related to the time to field.

So I believe that the intent is there for time, cost, requirement tradeoffs to go through the process. I think that the thing that the Congress can look for is, is that dialogue happening, and if any of those requirements are changing, why, and is there a justified need, so that, again, it is all about keeping eyes open so that we know what we are getting into.

And there was an attempt at the beginning of that program to put that kind of eyes-open tradeoffs into the process.

Ms. BORDALLO. Thank you very much.

And I yield back, Mr. Chairman.

The CHAIRMAN. Mr. Wittman.

Mr. WITTMAN. Thank you, Mr. Chairman.

I would like to thank our panelists for joining us. You all had mentioned affordability. I want to ask a question in that realm. It seems like where affordability goals have been used, they have been successful. I have a question, though, or a direction in how they are being utilized.

Are they being used across all acquisition programs? Are they being used early in a program's life? Are they managed by someone at a senior level, at a deputy level, who has oversight over all the aspects of the program, requirements, budgeting, program management, acquisition?

So I guess my question is this, is how often does DOD use affordability constraints or goals in the management of a process, and should those affordability goals be inserted at Milestone A, so they can have an effect early on in the process? I would like to get your perspective on that.

Mr. HALE. Well, I think right now there is—according to the September 2015 report again, I don't have up-to-date information. They said there were 29 caps. They said it was about 29—or 70 percent, I should say, of the MDAP programs have them. I think most of them are put in place as you get near Milestone B, and because I think you have a better sense then of a weapon that you can cost out. Some of them precede Milestone B.

They didn't get a lot of attention in the September 2015 report. There was one page describing them, but they are also, I think, relatively new, and so I think, as I said, I believe this is an area where Congress can—should continue to ask questions of the DOD witnesses that come before them as to how well they are doing in both implementing and enforcing them. And as you heard me say several times, I would pay particular attention to the operating and support cost portions of those caps, since I think they are newer, harder to do, and probably don't get quite as much attention as the acquisition side. Is there anything you want to add to that?

Ms. FOX. If I may, I would like to add. So I do think Secretary Hale said that they are new, so I think we need to give it time. The bomber example is one that is a little further along. However, I would want to go back to emphasize, in my view, the importance of the conversation about affordability goals early and throughout because if you stick strictly to the affordability caps, you may be trading capability throughout that makes the program less valuable when it is ultimately fielded.

This gets back to the risk discussion that we had earlier. Sometimes I worry that in the interest of—you know, the pendulum swings right, so we were taking nothing but risk and had terrible red cost and schedule situations. But we don't want it to go so far back the other way that we squeeze all the risk out, and therefore, we have got affordability caps, but we don't end up with programs that actually advance capabilities. So it is a conversation. Congress has to be part of the conversation, in my view, transparent but eyes open.

Mr. WITTMAN. Yeah. And let me ask you this. You know, the whole idea of affordability, I think, has to include the concept of value, and if you do that, it has to start in the program writing

process to make sure there is continuity there, to the process where you get to a proposal, to the process where you get to program managers, and there is a stovepiping of that that happens right now.

So along the way, affordability might get mentioned or value might get mentioned, but it doesn't continue through the process. That is why, I think the question—Admiral Winnefeld, I would love to have your perspective there since you served at that level. How important is it for senior decision makers at the deputy secretary level to look at the continuity of this, to make sure that if we are going to use affordability as a part of that, that value transfers from stovepipe to stovepipe, from requirements to proposal writing to program management to acquisition?

Admiral WINNEFELD. First of all, it is about communication. It is about inclusion, making sure you have got the right people in the right meetings. I do think that the—if the value is represented by whether the requirement is being achieved, or you know, the distance between threshold and objective or however you want to characterize it, I think that does get carried through the process. And in fact, as the JROC, we would not just sort of hand off a requirement and wash our hands and, you know, somebody else's problem. We would get frequent briefs. For example, I got a brief every 6 months on the F–35 that was very detailed on the status of that program in front of the entire JROC and the advisors.

And so we would be able to assess whether the value was being retained as the program marks through its various, you know, progress. It is an important goal you are stating that we need to make sure we don't lose sight of that as you are focused now on manufacturability and cost and O&S and that sort of thing. But I think we are okay there. It is just something that senior leadership, as you point out, needs to keep an eye on.

Mr. WITTMAN. Very good.

Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. Mr. Scott.

Mr. SCOTT. Thank you, Mr. Chairman.

Ma'am, gentlemen, thank you for being here.

Admiral Winnefeld, I had the opportunity to watch my Bulldogs whip up on the Yellow Jackets this year. I don't know if you made it to the game or not, but it is usually a pretty good one. I couldn't help it. But I know you have been affiliated with Georgia Tech for a long time, and I hope to see you there in short order.

And I just wonder, as I listen to things and look at the way things happen in Washington, if the fear of failure sometimes isn't stronger than the desire to succeed. And when we get into things at the Pentagon, it seems that the getting something that is good enough ends up with so much criticism that we strive for something that in some cases isn't attainable when we spend a lot of money getting nowhere.

I look back at the purchase of the F–22 and what happened there, and I think right now we would be very happy to have more F–22s. But I have watched the one program that I have had the most experience with has been the JSTARS [Joint Surveillance Target Attack Radar System]. It was something that was—we were looking at the recapitalization of this when I got here. It certainly

seems that we are starting to move forward with this, and the recap long term is estimated to save $11 billion in operating sustainment over 20 years, and when we look—we have waited too long now. We know we are going to have a capability gap with that intelligence platform.

Is there enough emphasis on the making sure that those major acquisition programs stay on schedule, I guess, is my primary question.

Ms. FOX. So, again, I do believe that the schedule part of the Nunn-McCurdy legislation puts a point on it, for sure. I also think schedule and costs are so intertwined that the cost overrun aspects of it are so tied to schedules, that that is a concern. But I take your point, and I just have to harken to Secretary Hale's point about the budget pressures, which I know this committee also wrestles with.

When you have this kind of budget pressure and uncertainty, the Department responds by what we call slips and slides, slip-and-slide programs, which stretches schedules, stretches and adds cost, and it is what the program does in response to wanting—to being over-programmed but having genuine needs. JSTARS is a good example, I think.

So this budget environment is very difficult, frankly, for maintaining cost and schedule. And the Department is slipping and sliding. I think that there is a lot of oversight to try to prevent that as much as possible every year through program review, but I can tell you from personal experience, every year in program review, we slip and slide things, and every time you do that, you add cost and schedule.

Budget predictability is critical, and adequate budget to support the operations that were—that the Department needs to do, the size of the force that goes with that, and then modernization, it is all part of the package.

Admiral WINNEFELD. I just want to underscore that. And I do so in full recognition that this committee has actually tried very, very hard to get that stability into the budget that Mr. Hale talked about, both under Chairman McKeon and under Chairman Thornberry, so please keep that going.

But it would break your heart to sit in on some of these what we call DMAGs, Deputy's Management Action Groups, and look at the trades that are having to be made with these literally budget line items from year to year that are shifting around constantly because of the churn in the budget. Not having, you know, first of all, three-quarters of a years' worth of time to work because the NDAA doesn't get passed or the appropriations thing doesn't get passed until the end of year, and then only having 2 years of predictability, it just introduces incredible turbulence and churn into these programs. And we literally sit there at the table and you're moving numbers around, and you can just see the breakage about to happen in these programs. It is underestimated impact.

Mr. SCOTT. So I would just point out that—and you know this, that, you know, the acquisition cost of the first unit is a lot different than what it takes to produce the second one, and I just wonder if some of the accounting that gets done at GAO [Government Accountability Office] and other areas, if their pricing technology is a variable cost instead of as a fixed cost because once it

has been sunk into this, the new weapons system, it is gone. Thank you.

Thank you for being here, and I hope to see you in Georgia.

Admiral WINNEFELD. Go Jackets.

The CHAIRMAN. Admiral, there is—I think all of you have expressed some support for affordability caps or goals. One of the concerns that I have heard is that, okay, if you start out with this affordability goal, then the military is going to dial back the requirements to fit within the affordability goal. And so what is your view about that concern, not really saying what they need but just trying to try to calibrate what they can get?

Admiral WINNEFELD. It is a good question, and I would say at the front end of that process, the WSARA asked us to consider cost when we were formulating requirements. It didn't say you have to put a cost cap on. It didn't say, you know, that should be the principal and only variable when you are considering a requirement. It just said consider it.

And I think that we have taken a mature approach to that, looked at it as I think the spirit of Congress intended, and that is: Look, don't give us a gold-plated requirement that is just going to be unrealistic from the start, that is going to—doomed to failure either from a cost perspective because of the technical risk or what have you, and I think—I don't have any examples at the tip of fingers. It has been too long since I have been there.

But I do recall several times when we said, you know, we have just got to be really careful here. This technology is tight, and you know, we are going to have to maybe dial either back the timeline or the actual requirement. So—but I don't know that it ever really had a major impact on what a warfighter was looking for.

And then there is the whole process of threshold and objective that builds in a little bit of flexibility there for what—you know, a stretch goal for the requirement, you know, to try to achieve that by trying to hop across that threshold and get there successfully. The thing I worry about with program managers, who are paid to spend every last dollar getting as far as they can from the threshold to the objective, there is a knee in the curve there somewhere, and we ought to reward those folks when they come back and say, you know, I could spend 90 percent of this money just getting another 2 percent towards the objective, maybe reward them when they take a better approach than that.

The CHAIRMAN. Yeah. And I want to—go ahead, sir.

Mr. HALE. There are two sides to this coin, and we need innovation for sure, and I think Secretary Carter made that clear yesterday and is getting emphasis, but we also, when we develop something innovative, need to have balanced the cost versus the requirements in a way that we can buy a reasonable number of them and pay to operate them.

So I think the affordability caps don't need to stifle innovation, much of which occurs before they are set. I hope that they will help the Department make tradeoffs so that it gets reasonable numbers of these weapons and not the B–2 sort of situation where we bought, what, 21 of them, and I hope we don't do that with this bomber.

The CHAIRMAN. Yeah, yeah, me, too.

Mr. Hale, message received on operation and support costs. Do you think it is feasible to have some sort of cost goals or caps for pure services that the Department contracts for, which is an increasing part, as you well know, of the Department's budget?

Mr. HALE. So that is a good question and not one I thought about a lot. I think it is worth thinking about. It probably would have—I mean, for some cases and services, we do fixed-price contracts if we have one, but many of them are not, and it probably deserves some more thought.

And maybe perhaps I could ask Dr. Fox here if she has some thoughts on that one since I don't have anything really good to say.

Ms. FOX. It is not doctor, but that is okay. Thank you for the compliment.

So, okay, service costs, yes. You know, it all gets down to the number of efficiency reviews that the Department has done. And I saw Secretary Carter's speech yesterday, apparently continues to do, and service costs are a key part of that.

So there are two really hard things about this, if I could. One is you really need to understand what we need these people to do. So if you want to take out service costs, we want to make sure that we are understanding that we might have to take out things that they are doing and look at the products, the services they provide. And then the other side, which is really far from that, is management because a lot of them are maybe not doing critical things, right. There may be we have just let the services grow.

So you have this very hard detailed work that is required to trade off—to look hard at have we grown, because things grow, and so you need to push that down, which we always need to do, and then you get to a point, and in some areas of services in DOD, I believe that there are points where you have gone too far, and then you start to see people in uniform performing services that it would be far better and cheaper to have contractors perform.

So what does it all come down to? A lot of hard detailed work. You have to peel it all back, ask: What are they doing? Is it managed well? It is constant. You have got to be vigilant about it. I certainly think, for the three secretaries I had the privilege to work for, they pounded on me and us to do that, and it is constantly needed, and so keep pounding is my best answer. Sorry.

Mr. HALE. With a moment to think, let me add a thought, and that is, some significant contracts occur in the support of weapons systems. And I think if we find ways to shine a bit more of a spotlight on O&S cost, which I think is starting to happen, but continue that, we will accomplish some of the goal of trading off contracts for services as well as other aspects of operating and support costs, but it is a good question, Mr. Chairman.

The CHAIRMAN. Ms. Fox, you mentioned at one point earlier today about the incentives of the program managers to do certain things. One of the conclusions that I think most of us have reached, as we have looked at acquisition, is that is really crucial. You know, we can pass whatever laws we want to, but it is the incentives for the decision makers that really control the outcome.

Do you have any other thoughts or guidance for us on incentives that may not be operating in the way that leads to—that lead to the results we want?

Ms. FOX. So it is—I agree with you completely. I think the incentives have moved with the emphasis on starting programs well, but there still are an enormous number of incentives in the system that start from how people are assigned to how long they are assigned to how they are promoted and rewarded that are all about the momentum of the process.

So, for example, one of the aspects of the acquisition process—so you get a program manager who is trying to get to that next milestone, that is their incentive or they're incentivized to do that, and they find a better way. A contractor comes along with some new idea, or there is some new innovation. Their incentive is not to say, "Oops, wait, stop, let's do that," because what they are looking at are all the things they have to do to get it right back to where it is right now in the process.

So the things that this committee is doing, the things that I think Secretary Kendall is trying hard to do in streamlining the acquisition process, those are all necessary parts to incentivize people to do smart things along the way. And right now those incentives aren't there because it just feels like they are pushing a boulder up the hill, and they don't want to lose ground.

The CHAIRMAN. Well, I think back to keep pounding away, that is one of the areas where we do need to understand what it is like to be doing that day to day and try to improve.

Mrs. Davis.

Mrs. DAVIS. Thank you, Mr. Chairman.

Just quickly, I think as you were speaking, Ms. Fox, you know, sometimes we know what people do, but asking why we are asking them to do it is different. And sometimes that is a little harder to incorporate.

We have a better budget right now in terms of predictions. I mean, there is a little bit more predictability in the budget. I hope that is correct. And I am wondering, is there a way of tracking, if you will, how people are performing, how we are doing as a result of that, and being able to go back so that future Congresses will see the difference? And I am—you know, really some metrics that get a handle on the impact, the consequences of doing things in a more predictable fashion. Is this a good time to look at that? What would those metrics look like?

Ms. FOX. So absolutely this is a good time to look at that, and my answer is not restricted to this time. This is a historical view, and one of CAPE's roles is to collect that data over time, and they do that well, and they should be continued to do that well and be required to do that because without historical data, you can't do the very important thing that you just suggested.

I will refer you, if I could, to a study done by Dave Nichols, who used to be the cost director in PA&E [Program Analysis and Evaluation] formerly and is now at the Institute for Defense Analyses, and he did exactly the study you are suggesting where he tried to correlate the performance of programs to different acquisition reform initiatives, and interestingly, in a nutshell, he found that not much correlation there but a very strong correlation to precipitous budget drops.

Whenever the budget dropped or became very uncertain, the Department went into that slips and slides method that I referred to

earlier, and that is when the costs started to grow. So he did that long-term view that reinforces exactly the question that you are asking, and I do hope that we are starting a new period of predictability such that we can recover that and get back to performance predictions and achieving the best that we can.

Admiral WINNEFELD. You know, it might be interesting sometime, and I hope I don't put my former DOD colleagues on the spot on this, but to just have them bring maybe one slide over from one of those decision briefs that we have, to show you the kind of puts and takes that they are looking at with budget uncertainty. And, well, you know, we have option A, option B, option C, option D, and what all those little options do to crunch the program, and you know, if you have to save X amount of money, what it really does.

That might be sort of maybe for a small group, maybe for the chairman and ranking member and some staffers to just kind of walk through that process and see what people are going through.

Mr. HALE. So I would just add, we have some predictability for 2017, and I am thankful for that. Although I think the issue of OCO will arise and may affect that. 2018, we are potentially back in the soup, and there needs to be a broad budget deal in a new administration that looks beyond just discretionary spending but also at entitlements and probably revenues as well, and a device to get rid of this meat-ax sequester that was put in place by the Budget Control Act, and I hope that happens. It hasn't been debated much so far, but I hope that it does get debated and that it happens in a new administration.

The CHAIRMAN. For what it is worth, I hope it happens, too, and I hope that——

Mr. HALE. Be open—too.

The CHAIRMAN [continuing]. The stability we thought we were achieving last year is the stability that we do achieve this year, regardless of the increased operational costs, which, you know, are a fact, given the way the world is moving.

So, Mr. Veasey, you have a question? You are good.

Mr. Lamborn.

Mr. LAMBORN. Thank you, Mr. Chairman, and thanks for having this important hearing, and thank you all for your contributions.

Former Admiral Winnefeld, I want to ask you in particular, and by the way, thank you for your distinguished service, and it was good to get to know you when you came to Colorado Springs. As the chairman's designee heading the JROC, how do you feel the current service-led acquisition system serves national requirements, including nuclear forces, NC3 [nuclear command, control, and communication], space, and missile defense, are these capabilities service priorities?

Admiral WINNEFELD. I think they are becoming more and more a service priority. I think we are on a good trajectory there. We were not several years ago, and—but I think the senior leadership within the services, particularly the Air Force and the Navy, who are most concerned with the particular programs you are talking about, have really stepped up recently. They have had some encouragement from a number of forums, the—Frank Kendall, the head of AT&L, and I co-chaired a forum on the command and control system, nuclear command and control system, that brought all

the stakeholders together in a very cooperative fashion and tried to stitch things together there.

I think that Deputy Secretary Fox, when she was in power, and also Deputy Secretary Work put a lot of emphasis on that, and I personally put a lot of emphasis on this, and the service secretaries and chiefs have responded very well. They knew that this needed to happen. I think we are on a much better trajectory, I will tell you, than we were a couple of years ago in the nuclear command and control arena.

Mr. LAMBORN. Excellent. That is great to hear. And kind of a followup, can you explain why strategic missile warning, ITW/AA [integrated tactical warning/attack assessment], is important? Should this capability be considered a part of NC3 as opposed to a space system, which it currently is?

Admiral WINNEFELD. First of all, it is important because it links the sensors that would detect a missile launch or other thermal event to the people who need that information, the command and control leadership, so it is a very, very important system. I am not convinced that it belongs in a nuclear command and control system. It is a space system, just like GPS is a space system.

People who are space savvy both on the technical side and the operational side probably ought to be the ones running it, and in some cases, those platforms ride on other platforms as well. I don't think there is any harm in leaving it where it is, and I think you have actually got maybe right now really good ownership of the space piece.

We have got a very good trajectory also on the space executive agent inside DOD, the Secretary of the Air Force, so I would tend to not want to tamper with that, but it is something that we have got to pay very close attention to because, you know, I always say the most vital national security interest of the United States is the survival of the Nation, and being able to detect somebody who is threatening that with a missile launch is absolutely critical, so we've got to make sure we pay close attention to it.

Mr. LAMBORN. Okay. Well, thank you. And as another followup, have you seen the Air Force apply appropriate priority to its modernization?

Admiral WINNEFELD. This falls back into your first question where they are on a better trajectory, I think, than they were several years ago. They have stepped up to the plate. They realize that. I haven't been in for 6 months to look at where it actually fell out in this year's budget, so I can't make an assessment there, but I have sensed, as I was leaving, that they were strongly committed to that program, so it would be interesting to see what pops out in the budget. I lost visibility over that 6 months ago.

Mr. LAMBORN. Okay. Now, what would you tell Air Force senior leadership if someone were to suggest that, well, we can trade 1 or 2 minutes' worth of missile warning time in exchange for saving some budget resources, which we can apply elsewhere, what kind of tradeoff would you consider that?

Admiral WINNEFELD. The only tradeoff I would consider is to get one or two more minutes of warning time in that regard. We need everything we can get there. Again, the critical element of the defense of this Nation from the most catastrophic attack you can

have, and I wouldn't want to trade any time. Obviously, if somebody said, "Well, it is going to cost you a trillion dollars unless you accept this 1 minute," you know, there is—every man has his price, I suppose, but I really would be reluctant to consider any decrease in the amount of warning time we give the President in relation to an attack on this country.

Mr. LAMBORN. Okay. And Mr. Hale, Ms. Fox, in the short time we have left, do you have any observations on our dialogue?

Mr. HALE. I don't have anything to add.

Ms. FOX. I would just add that I completely agree with Admiral Winnefeld. These are critically important areas. I think that the Department is focusing on them more and needs to continue to do that, and resources are going to be required to modernize these important areas in the future, and it is going to continue to be a stress on the budget, more so.

Mr. LAMBORN. Okay.

Thank you, Mr. Chairman. I yield back.

The CHAIRMAN. Mr. Veasey.

Mr. VEASEY. I did have one question that I wanted to ask the panel. As far as acquisition reform is concerned, and someone may have already asked this, so if they have, please forgive that. But if there was one area of reform that you could pick and you can only pick one, like where would it be? And it could be a policy or a technique or anything that would just maybe be the beginning of something really good as far as acquisition reform is concerned.

Ms. FOX. I would think about how to add back risk into the equation of acquisition programs with eyes open, making sure that we completely understand the cost and schedule implications of that risk, but I—that is the one aspect of reform that I think we haven't focused enough on since we have done so much good and important work on swinging us back to predictable programs. I think now we need to worry just a little bit about whether we have become too risk-averse.

Mr. HALE. Well, as I said in my statement, I would try to build on the framework the Department has to do a better job of controlling operating and support cost because they are so important to the budget, two-thirds of the total defense budget, more than half of the life-cycle cost of weapons. We have got a framework to do that, and this affordability caps that the Department has used, I think it needs more attention and effort to try to control these costs.

Admiral WINNEFELD. And while I am in absolute agreement with what my two colleagues have said, because those are very important, I would at least potentially open a dialogue with the Department, including AT&L and the comptroller and CAPE on: Does it make sense to provide money—discretionary money upfront to the Department so that they can accelerate development of programs once the requirement has been established so you can visualize in rough crude terms that the requirement hits the street, now we have got a budget for it, and because of our cycle process—you know, it is 1½ or 2 years before the thing really gets money. If there were a pool of money where we could actually accelerate development in that space, you might actually bring some of these programs forward significantly in time at relatively low cost, you

know, just not—just eliminating that waiting game for the budget to catch up to the requirement would probably be something at least to entertain a dialogue with the Department on.

Ms. FOX. If I could just add to the importance of the access to money. I do believe that the NDAA includes a rapid prototyping and fielding fund, if I read it correctly, not really sure that I appreciate exactly how that will be implemented, but ideas like that to allow the Department to do the kinds of things Admiral Winnefeld suggested, I think, are critically important to increasing our ability to get new ideas out to the operators.

Admiral WINNEFELD. And just to amplify. I think Ms. Fox would agree with me. We really are talking about two different things here. One is a pool of money for rapidly experimenting with new ideas and seeing if they bear fruit and then turning those into programs.

The other thing is maybe even a stable, fairly vanilla program that just is running through its life cycle and not having to wait that year and a half or two to get it started. It doesn't take much money to get these things going, but if you are having to wait that year and a half just pro forma because of our process, then you are losing time.

Mr. VEASEY. Thank you, Mr. Chairman.

I yield back my time.

The CHAIRMAN. Thank you.

Mr. Brooks, do you have questions?

Mr. BROOKS. I do. Acquisition reform is something that we need as a matter of good government, but I would submit further that it is very quickly becoming a matter of financial necessity. I am not sure if you have seen the kind of economic financial data that we have been seeing in Congress, but it has taken a dramatic turn for the worst.

By way of background, I was elected in 2010. Since 2010, one of the things that the Republicans in Congress could at least point to every single year the deficit got lower—i.e., better—still horrible at $439 billion, which was last year's deficit, but that is a whole lot better than the string of trillion dollar deficits that we had.

In the first quarter of this fiscal year, revenue has been up 4 percent, which is a good thing, but spending went up 7 percent. According to the Treasury Department, the first fiscal year, we had a $36 billion worsening of our deficit situation compared to the first quarter of the previous fiscal year. By extrapolation, that would suggest that we are going have a $144 billion deficit worse than what we had in a bad $439 billion deficit last year. However, the CBO [Congressional Budget Office] is a little bit more optimistic saying: Well, we think it will only be $130-something billion worse, putting it somewhere in the neighborhood of $570 billion.

They are also telling us that while we blew through the $19 trillion debt mark recently, within a decade we are going to blow through the $30 trillion debt mark, which means that we are looking at a 10-year average of over a trillion dollars a year in deficits. That being the case, what is your judgment that the Pentagon is really serious about streamlining acquisition efforts through the Federal acquisition regulations, changing that, or what have you,

in order to maximize the bang for the buck that the taxpayer has to allocate to national security?

Mr. HALE. Well, my evidence is a little out of date, but I think they are serious, and I think they have made some progress in important areas of acquisition reform. To go to your broader statement, Mr. Brooks. We need a broad budget discussion in this country, not just the discretionary spending, not just defense and nondefense discretionary spending, which make up about 30 percent of our spending, as I think you know.

We need to get at the other 70 percent, entitlements, mandatory spending, and interest on the debt, and probably revenues as well, and as I said earlier, I hope that in the new administration, we see a broad budget deal that goes beyond. I might add, Alice Rivlin, who I worked for many years ago and I have great respect for, working, I think, with Senator Pete Domenici suggested what Congress ought to do is start authorizing and appropriating entitlement funds so you don't just focus on the discretionary spending but that you focus on closer to 100 percent of what the government spends. I think that would be a good process reform, but we need substantive reform and a budget deal.

Mr. BROOKS. But you are telling me that you are optimistic that the Pentagon is in fact going to start becoming better at streamlining the acquisition process?

Mr. HALE. Well, I think there are measures that suggest they have already had some success, and again, I invite my colleagues to comment.

Mr. BROOKS. Okay. Any chance that there would be dramatic success of the kind needed to reflect the worsening financial condition of the United States of America?

Mr. HALE. I don't know if you would call it dramatic or not, but I think they have made progress.

Mr. BROOKS. Anybody else want to add any insight on that? If not, I will go to my second question.

Okay. Mr. Fox [sic], a lot of discussion today has focused on affordability constraints. If affordability goals were required in Milestone A for all programs, it would force conversations and coordination early in the acquisition process.

Mr. Fox, can you please—excuse me, Ms. Fox, misreading my notes here—can you please speak to the accuracy of cost estimates early in the process? Is there enough fidelity to inform affordability goals at Milestone A?

Ms. FOX. I believe that the accuracy of the independent cost estimates have shown that the ICEs are more right than wrong over time, and I believe that the more data that they have, the more accurate that they are. I think that there has been a tremendous amount of progress in bringing independent cost estimates to the Milestone A discussion and the conversation in the Department of tradeoffs between requirements and costs, so I believe that those changes are in fact taking place and have been taking place for a few years now.

I think that it may take time for that to play through so that it is more visible, but I believe that those changes have been made and that independent cost estimates are having impact.

Mr. BROOKS. Well, Mr. Hale and Ms. Fox, thank you for your responses.

And Mr. Chairman, I yield back.

The CHAIRMAN. Great.

Thank you all, not only for being here today but for the many ways that each of you has served the country.

I have one other favor. As we did last year, we are going to introduce a stand-alone bill on acquisition reform this year in March, and the idea is that the people who deal with the acquisition system, have experience and insights, can give us feedback about how it can be improved before we actually mark up the defense authorization bill for this year.

So to the extent you are looking for something to do some Saturday night, if you have some suggestions when we release that, your feedback to the committee—further feedback to the committee would be very much appreciated. So, again, thank you all for being here.

With that, the hearing stands adjourned.

[Whereupon, at 11:40 a.m., the committee was adjourned.]

A P P E N D I X

FEBRUARY 3, 2016

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

FEBRUARY 3, 2016

PREPARED STATEMENT

OF

THE HONORABLE CHRISTINE H. FOX

ASSISTANT DIRECTOR, JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LAB

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE

3 February 2016

Chairman Thornberry, Representative Smith, and distinguished members of this Committee, I appreciate the opportunity to speak with you today about acquisition reform. During my tenure in the Department of Defense, my colleagues and I spent considerable energy to improve the affordability and feasibility of the major defense acquisition programs. In my current position at the Johns Hopkins University Applied Physics Lab I have the pleasure of working closely with scientists and engineers who are innovating with new technologies. From observing the need for innovation within the DoD to witnessing the opportunities that I encounter at JHU-APL, it is clear to me that seeking new approaches for acquiring systems is as important as ever. Thank you for the opportunity to share my observations and current thinking on these issues.

Getting programs on track—the importance of independent cost estimates

I came to Cost Assessment Program Evaluation (CAPE) soon after enactment of the Weapon System Acquisition Reform Act (WSARA) of 2009. While this law has its critics and could always stand improvement, it represented important progress in one respect central to the subject of this hearing: it helped to 'start programs well.' I saw this first hand after becoming Director of CAPE in November 2009, just a few months after WSARA was enacted.

At that time many programs were in the 'red' for both cost and schedule, some of which eventually breached Nunn-McCurdy thresholds. The cost group in CAPE has used a solid process for predicting cost and schedule for years, dating back to when they were called the Cost Analysis Improvement Group (CAIG) and were part of CAPE's predecessor organization, PA&E. Then, as now, they projected costs and schedule based on information collected from ongoing and historical programs. Then, as now, they continually updated projections based on actual performance data and with the benefit of spending considerable time with industry partners to collect data and discuss programs. As a result of their rigorous methodology, the cost group's estimates were consistently more right than wrong.

While these cost estimates had been available for years, programs continued to be in the red – over cost and behind schedule. The reasons are varied and unique to each program, but a common factor was a strong want and need for the program coupled with institutional incentives to be overly optimistic when it came to development and manufacturing timeframes and, with those, cost. Too many defense leaders, in and out of uniform, wanted to believe that the hard data and analysis derived from prior programs simply did not apply to their favored weapons systems, or that they had the proverbial "secret sauce" to overcome the results of the past. In short, they thought: "this time will be different." And, because there was no requirement to honor the CAIG's estimates, programs of record moved ahead based on hopes that were seldom realized.

The 2009 WSARA changed all that. For all major defense acquisition programs under the purview of the Under Secretary of Defense for Acquisition, Technology and Logistics, the law forced the Department to have an independent cost estimate developed by CAPE for all major program milestones and at certifications for programs experiencing cost overruns. No longer could the Department base program decisions just on the projections of a program's most ardent advocates. Cost estimates were forced to become more realistic, including Service estimates.

Since the enactment of WSARA, the Services have largely adopted the CAPE cost estimating methodology. As a result, the difference between CAPE and the service estimates is small and getting smaller – shrinking by nearly 60 percent since WSARA was enacted.

Beyond better estimates, the CAPE approach has also helped the Services push costs down. Now that program managers have a better understanding of the areas where costs have grown, or the drivers behind the cost of a multi-year procurement, they have the ammunition they need to negotiate better prices.

As I mentioned earlier, WSARA's power was that it required the Department to to become realistic in its cost estimating processes. As our former Comptroller, The Honorable Robert Hale, will tell you, to scale that across a number of programs requires a dependable top-line defense budget. And, despite the best efforts of this committee, the defense budget has been increasingly uncertain over the last 5 years, making it nearly impossible to plan in the way that WSARA intended. When budgets are cut precipitously and change year to year, the Department will respond by slipping and sliding schedule and costs further into the future – the most inefficient way possible to manage a program. All of the realistic cost and schedule estimates in the world will not substitute for predictable budgets and consistency in program execution. Recent efforts by the Congress to restore the budgeting process to regular order and to provide some certainty to DoD is a great help, but much more is needed.

Requirements

Beyond good cost estimating and budgeting, the other key factor in starting programs well is collaboration among the Joint Staff, CAPE, and AT&L at the requirements stage, the first step in a program's life cycle. My colleague, ADM Sandy Winnefeld, when he was the Vice Chairman of the Joint Chiefs of Staff, took significant steps to ensure that CAPE and AT&L had a voice as requirements were debated at the Joint Requirements Oversight Council. As a result, the Department was able to make smarter choices on requirements and acquisition approaches that help control cost and schedule growth in programs. For example, technology maturity is now as much a part of the requirements discussion early in a program's life cycle as is cost and schedule realism.

This early dialogue is critical to enabling smart choices but it cannot stop there. To be successful, the Joint Staff, AT&L and CAPE, in conjunction with the Services, need continual discussions of the interrelationship between requirements, cost, and schedule throughout a program's life cycle.

This progress of recent years – whether on cost estimates or requirements – will be all the more important as the Department implements the acquisition reform provisions of the FY 2016 NDAA. One recommendation I can offer this committee is to amend the law to ensure that CAPE continues to provide independent cost estimates for all programs for which they currently have responsibility, regardless of where the milestone decision authority resides.

The acquisition workforce

In addition to good cost and schedule estimates and realistic requirements, we need people with the experience and confidence to stand up to industry when necessary, and also to internal advocates who want more than they can reasonably achieve. Both Secretary Carter and Secretary Kendall have pushed for a larger defense acquisition workforce and since 2009 the force has grown, and grown better educated as well.

More and better professionals are an important part of improving DoD's acquisitions, but we also need incentives for program managers to stand up and tell hard truths: that "it's not ready to go to the next milestone," or maybe "it's never going to be ready," or even "we don't need it anymore." No one wants to throw up bureaucratic roadblocks and unnecessary delays; however, currently the incentives are for program managers to get their program to the next milestone, regardless of whether it *should* go forward. More is needed to encourage our acquisition professionals to provide candid assessments of their programs.

Rapid Prototyping

While more improvements can be made, it is clear that aspects of WSARA and other process improvements led by AT&L and the Joint Staff are allowing us to design and field programs more efficiently and effectively. But it still takes time. For platforms that last 50 years, that time is probably warranted, but, increasingly, and thanks to our potential adversaries, we simply don't have the time to wait.

To speed things up during the wars in Iraq and Afghanistan, the Department reaped huge advantages from collaborations with innovative industry partners. As we shift into a peacetime setting, we have to think of creative ways to enable the Department to gain better access to non-traditional and commercial contractors, to lower the barriers to these new partnerships, and to increase the Department's access to innovative solutions at a faster pace.

But working with commercial firms won't address every Department need. We must consider ways to develop DoD-unique technologies and keep them at the ready – on the shelf – for the day when the nation has an immediate need and/or when the budget environment changes, as it certainly will. By developing technologies to the prototype phase and holding them on the shelf, the Department has the opportunity to experiment with them and develop new concepts of operation so that the operators and the technology are ready to go when needed. It also enables continual upgrades of these programs without the expense of upgrading an entire production line.

For this to work, the Department would have to be able to go from shelved prototype to production in short order. In addition to working with industry to prepare for these transitions, the promise of advances in manufacturing would give us the ability to take a technology from design to prototype to production on demand in the future.

Successfully putting technology on the shelf, maintaining it there, and then subsequently taking it off the shelf and rapidly manufacturing it will require a commitment of resources to preserve hardware, software, information, and expertise. It will also require investments in the new technologies and advanced manufacturing techniques needed to produce them, but the payoffs in these investments in the future could be enormous and I believe it is worth trying.

By experimenting with these types of ideas we can develop better criteria where we can distinguish those problems better suited to a rapid prototyping, tech-on-the-shelf approach from those requiring a more traditional approach. For example, we certainly wouldn't accept a rapid prototyping, tech-on-the-shelf approach for our strategic submarine force. But without a process for or incentives to put technology on the shelf, we risk losing good ideas and prolonging the time it will take to field new technologies when we need them.

Accepting Prudent Risk

Rapid prototyping and tech-on-the-shelf hold the promise of getting rapidly advancing technology in the hands of the warfighter when needed. But as we have already discussed, these approaches, however, are not appropriate for our large acquisitions. For those large programs, we are pushing out risk and are increasingly following a realistic and achievable path to procurement.

But what if we are not taking enough risk in our technology development?

Our potential adversaries are rapidly fielding new technologies that might require us to push ourselves in select areas. Perhaps it is time to knowingly take risk in select, critically important larger programs.

This could be a new category of acquisition programs in which we push the boundaries on our technologies, with full awareness and acceptance of the inherent cost and schedule risk. In my view, this is an acceptable approach only if there is an agreed upon need and we are candid in our assessments of the risk.

The Global Positioning System (GPS) offers an example of what I mean. Initially, we had a satellite-based navigation system called Transit that was great at providing accurate latitude and longitude measurements. We could have chosen to continue to evolve the Transit program but, almost from its inception, people realized we needed three-dimensional navigation for greater accuracy and additional military utility.

The Department jumped into the GPS program with a number of technical features still needing to be matured. The program did eventually deliver, but not before it experienced cost growth and schedule delays which nearly led to the cancellation of the program. But once it was fielded, the warfighting benefits were immediately apparent. And beyond warfighting, GPS has had enormous impacts on our every day lives, so much so that it is difficult to remember a time when we did not have it.

I argue we need to continue to take such risks. Unlike the GPS case, however, DoD and Congress should be partners on these risky adventures. To go forward, DoD should be required to fully share its assessments of the needs and the risks. We should demand a proactive approach to bounding the risks, including mitigation plans and off ramps where it is prudent to do so. In return, Congress may have to adjust the rules for these programs, such as the rules governing the Nunn-McCurdy thresholds.

The worst outcome of an approach like this would be for the Department to be allowed to go back to the days of believing in magic with regard to cost and schedule. If Congress was to elect to go down this path, that outcome must studiously be avoided. With proper controls, however, we have shown that we can do amazing things as a nation when we have taken risk and I believe that we must continue to do so.

Summary

In summary, DoD has made progress in reducing the cost and schedule overruns of major defense acquisition programs by leveraging authorities granted through WSARA; increasing teamwork and collaboration beginning with the establishment of requirements; and taking a more realistic and informed approach to reduce technological risk. In the future, in addition to sustaining these gains, we need to adopt new methods to more rapidly develop and field new technologies through rapid prototyping, concepts like technology-on-the-shelf, and, in the future, advanced manufacturing techniques. Finally, there may be some large programs where it makes sense to take additional risk and accept the corresponding impact on the Department's ability to reliably predict cost and schedule. In these select cases, it will be critical for that acceptance to be explicit and for the Department and Congress to agree in advance

that they are jointly taking a risk and that the risk is warranted. Most importantly, we should continue to work to include measures in our acquisition processes that prevent us from committing resources based only on hopes and dreams.

Thank you again for the opportunity to testify before you on these important issues.

Christine H. Fox
Assistant Director for Policy and Analysis
Johns Hopkins University Applied Physics Laboratory

Christine H. Fox is the Assistant Director for Policy and Analysis of the Johns Hopkins University Applied Physics Laboratory.

Prior to joining APL, she served as Acting Deputy Secretary of Defense from December 2013 to May 2014, making her the highest- ranking female official in history to serve in the Department of Defense. From 2009 to 2013, Ms. Fox served as the Director, Cost Assessment and Program Evaluation in the Office of the Secretary of Defense. In that position, she was the principal civilian advisor to the Secretary of Defense for analyzing and evaluating plans, programs, and budgets in relation to U.S. defense objectives and resource constraints.

From 2005 to 2009, Ms. Fox served as the President of the Center for Naval Analyses (CNA), a Federally Funded Research and Development Center, and as the scientific analyst to the Chief of Naval Operations. During her 28-year career at CNA, Ms. Fox oversaw analysis of real-world operations, from the first Gulf War and the operations in Bosnia and Kosovo in the 1990s, to the operations in Afghanistan immediately following the September 11th attacks, and the operation in Iraq in early 2003. From 2003-2005, Ms. Fox served as a member of NASA's Return to Flight Task Group, chartered by the NASA Administrator to certify the recommendations made by the Columbia Accident Investigation Board.

Ms. Fox currently serves on the Board of Trustees for the Woods Hole Oceanographic Institution and is a member of the Council on Foreign Relations. She previously served on the Advisory Board of the Applied Physics Laboratory, University of Washington.

With nearly 6,000 staff at what is the nation's largest University Affiliated Research Center, Johns Hopkins APL makes critical contributions to a wide variety of national and global technical and scientific challenges. As the Director of Policy and Analysis, Ms. Fox leads efforts to increase APL's engagement on technical policy issues and directs research and analysis projects on behalf of the Department of Defense, the intelligence community, the National Aeronautics and Space Administration, and other federal agencies.

Ms. Fox is a three-time recipient of the Department of Defense Distinguished Service Medal. She has also been awarded the Department of the Army's Decoration for Distinguished Civilian Service.

Ms. Fox earned a Bachelor of Science degree in mathematics and a Master of Science degree in applied mathematics from George Mason University.

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Witness name: Christine H. Fox

Capacity in which appearing: (check one)

(•) Individual

( ) Representative

If appearing in a representative capacity, name of the company, association or other entity being represented: _____

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Statement

Starting Acquisition Programs Well: Budget Issues

Honorable Robert F. Hale

Former Comptroller and Chief Financial Officer

Department of Defense

before the

House Armed Services Committee

February 3, 2016

I appreciate the chance to testify today regarding the budgetary aspects of acquisition reform, especially reforms that affect Department of Defense (DoD) weapons programs early in their life cycles. If weapon programs start well, DoD will be more successful in holding down costs and stretching defense budgets. Today I will address what can be done early in a program's life to hold down acquisition costs. I will also discuss the need to control operating and support costs, which I believe should be the next frontier for acquisition reform. I will begin by addressing the consequences of the budgetary turmoil that has adversely affected DoD weapons programs and all other defense activities.

Ending Budgetary Turmoil

Since 2010 DoD and many other federal agencies have experienced near-constant budgetary turmoil. The large and sudden sequester cuts of 2013, and the government shutdown in that same year, constitute the best known events. Other events are less well known but contributed to disruption. They include the repeated requirement to formulate plans to shut down the government, creating two budgets for the same year because of uncertainty about the ultimate size of the appropriation, and a steady diet of continuing resolutions including two that lasted for six months.

Some aspects of this budgetary turmoil harm acquisition programs disproportionately. For example, when operating under continuing resolutions, DoD cannot generally undertake any contracting actions related to new-start programs, and the Department must often delay other contracting actions because of uncertainty about the eventual size and composition of budgets. These delays compress many contracting actions into part of the year, which makes it harder for them to be successful. Large, rapid cuts in defense budgets also tend to harm acquisition programs disproportionately because of the difficulty of cutting forces and people costs quickly. In 2013, for example, DoD experienced the largest one-year cut in defense funding since the Korean War. In 2013 base-budget funding for acquisition activities absorbed about 45 percent of the budget cuts even though acquisition funding makes up only about 30 percent of the defense budget.

In most cases budgetary turmoil harms all programs in the Defense Department, not just acquisition efforts. Budgetary turmoil wastes money, siphoning funds away from more useful purposes. Because of the shutdown furloughs in 2013, for example, DoD wasted about $400 million in civilian personnel costs. Budgetary turmoil also consumes substantial amounts of the time of thousands of DoD managers, reducing the time they can spend on long-term improvements such as acquisition reform.

Of particular concern are the effects of budgetary turmoil on the morale of DoD's workers, especially its civilian workers including many who work in acquisition. Poll data suggest that, despite a recent uptick, the morale of government civilian employees has declined by about 11 percent since the budgetary turmoil began in 2010. The two furloughs in 2013 contributed to this decline, as did three years of civilian pay freezes. Some in Congress have also contributed to the problem through their criticism of government civilian employees. Employees perform best when they feel that their employer values their work and treats them well. After the events of the past five years, fewer DoD employees appear to have those feelings about their employer.

If DoD is to succeed in improving the performance of acquisition and other programs, Congress and the Administration must end the budgetary turmoil. The Bipartisan Budget Act of 2015 made a start by providing a predictable budget for fiscal year 2017. But the country needs a broader budget deal that addresses all aspects of federal spending and revenues, not just spending on discretionary programs like defense. That agreement needs to end the threat of meat-axe sequester cuts and provide reasonable levels of funding for the Department of Defense and other federal agencies, while also taking into account deficit concerns. Hopefully a broad budget agreement will be a priority for the next Administration.

Slowing Growth in Acquisition Costs

Let me turn now to ways to hold down acquisition costs by starting programs well. Unit acquisition costs for defense weapons have grown substantially for many decades. I call it the "rule of 2 to 3". Unit acquisition costs of new generations of weapons are often 2 to 3 times

larger than those for the preceding generation, even after adjustment for inflation. This rule still appears to be holding for some recent major acquisitions. The F-35 aircraft, for example, seems likely to have an acquisition unit cost several times that of the F-16, the plane it will replace in largest numbers. The Ford-class aircraft carrier also appears to be following the rule.

Some of these higher acquisition costs led to improvements in capability that were needed to keep up with potential adversaries. Stealth, for example, has been a game changer in military terms. Computerization is necessary to stay ahead of potential adversaries.

However, higher unit acquisition costs – especially combined with increases in operating and support costs that I will address next – force the military to reduce the size of its forces unless overall defense funding rises sharply. To avoid continued force cuts, it is important that, early in the life of a weapon system, DoD weigh costs against capability in setting the baseline costs for weapon systems and then avoid increases above those baselines.

In recent years the Defense Department has made significant and commendable progress in avoiding growth above baseline costs. In its September 2015 report on the performance of the defense acquisition system, DoD assesses growth in the cost for major defense acquisition program compared with baselines set at milestone B of the acquisition process. That growth has declined significantly since the 1990s. In recent years there has also been a decline in the fraction of major programs with Nunn-McCurdy breaches not related to quantity changes and an overall decline in the fraction with critical breaches. (The Nunn-McCurdy legislation requires a report to Congress when growth in the costs of a weapons program exceeds thresholds established in the law.) The September 2015 report also highlights improvements in other aspects of acquisition performance, such as cycle times, that significantly influence budgets.

While avoiding growth above baseline costs is important, the Department also needs to establish baseline costs that are consistent both with likely future budgets and threats to national security. Establishing reasonable baseline costs requires difficult tradeoffs between costs and the requirements for weapons that, in many cases, will be in the DoD's inventory for

decades. These tradeoffs need to occur early in a program's life, when major changes can be made in a weapon's design. Starting programs well demands these tradeoffs, difficult though they are.

I will defer to other experts regarding the best nature of the tradeoffs and how to make them stick. However, based on decades of experience working around defense policy and budget issues, I am convinced that the Department and Congress need mechanisms for highlighting the results of these tradeoffs. To that end, I am pleased that the Department of Defense is moving forward with affordability caps. As described in the September 2015 report, these caps will apply to both procurement and sustainment costs and so will address budget issues over the entire life cycle of weapons. If affordability constraints cannot be met – even after aggressive cost control efforts – the DoD report states that technical requirements, schedule, and required quantities must be revisited.

According to the September 2015 report, affordability caps have been established for 29 major defense acquisition programs including some programs that have not yet reached milestone B. Thus about 70 percent of the major defense acquisition programs have been assigned an affordability constraint. The military services have established organizations to help establish and monitor the caps.

I have focused so far on DoD's efforts to improve acquisition and control costs. Congress has also sought to improve the acquisition program, most recently through a series of reform initiatives embodied in the defense authorization legislation for fiscal year 2016. Some of the initiatives in this legislation should help hold down costs. For example, the legislation mandates increased involvement by the service chiefs in setting requirements. Tradeoffs with requirements are key to limiting cost growth, a goal that will certainly be on the minds of the chiefs and their staffs as they implement this provision. The legislation requires an acquisition strategy for all major acquisition programs, a provision that can help limit cost growth by providing a vehicle for assessing costs as they relate to budgets. The legislation also modifies the authorities of the Configuration Steering Boards, which are important in ensuring – among

other things -- that affordability caps are enforced in a meaningful manner. Finally, the legislation requires that the service chiefs submit a report on how to streamline and better integrate their services' processes relating to weapons requirements, acquisition, and budget.

The authorization legislation also seeks to improve DoD's access to commercial products, services, and solutions in part to help make available more innovative products from the commercial sector. More use of commercial products may also help hold down costs. The authorization legislation also seeks to streamline acquisition procedures and provides waiver authorities designed to facilitate faster and cheaper acquisition, especially for weapons capabilities that are of vital interest to the United States.

In addition to altering laws, Congress can play a key role in improving acquisition by shining a spotlight on problem areas. Based on my own experience in DoD, I know that constructive Congressional hearings focus senior-leader attention on broader issues, which is important because the frenetic pace of activity in the Department sometimes make it hard for leaders to focus on big-picture issues. I would particularly urge that this Committee and other defense committees use hearings to monitor DoD's progress with the affordability caps I just described.

Controlling Operating and Support Costs: the Next Frontier

The affordability caps deal not just with acquisition costs but also with operating and support costs (sometimes called sustainment costs). From a budget standpoint, controlling the growth in defense operating and support (O&S) costs represents a critical challenge. O&S costs make up about two thirds of today's defense budget. These costs also typically comprise more than half of the total cost of buying and operating a weapon over its life cycle. Operating costs are likely to become even more important to budgetary success as DoD keeps weapons in its inventory longer, increasing the period when the Department must pay to operate them. For all these reasons, I believe that controlling O&S costs should be the next frontier for acquisition reform.

In recent years O&S costs have grown sharply even as forces declined in size. After adjustment for inflation, O&S costs have grown by about 20 percent since fiscal year 2000. (These calculations exclude wartime or OCO costs.) At the same time, military force size – as measured by the number of active-duty military personnel – has *declined* by about 4 percent. This same pattern occurs in all the military departments. Nor is this trend limited to years since 2000; even more startling trends have occurred over at least the past 50 years.

DoD must find ways to control growth in costs for both O&S and acquisition costs. If it does not, then military forces will continue to get smaller unless defense funding grows sharply. Yet many military leaders believe that today's force sizes are already at the minimum required to handle global threats at acceptable levels of risk.

So what is causing O&S costs to grow and what can DoD do about it? For purposes of this testimony, I have defined operating and support (O&S) costs as funding in the appropriations for operation and maintenance and military personnel. That means that O&S costs pay for all the costs to operate a modern military, from fuel to military health care and much in between.

Some of the O&S growth is not directly related to operating military weapons. Increases in military health care costs and growth in costs for military compensation have caused part of the rise in O&S costs, as have many other factors. DoD has sought to slow the growth in O&S costs not related to weapons. With Congressional help, the Department reduced military health care provider costs, especially those related to pharmaceuticals. Congress has permitted DoD to slow the growth in military compensation in ways that, so far, have allowed the Department to meet recruiting and retention goals. Last year the Congress led efforts to reform the military retirement system in order to modernize the system and slow growth in costs. DoD has implemented initiatives to achieve efficiencies and eliminate lower-priority programs in order to control growth in O&S costs.

But more effort is needed. That is why I am pleased that key members of Congress have stated that they will tackle military health care reform this year, seeking to improve service while also slowing the growth in costs. Congress also needs to permit DoD to close unneeded military facilities. I know that this is a politically difficult task, but closing unneeded facilities will cut

back on the demand for civilian employees and reduce O&S costs. DoD, for its part, needs to continue efforts to seek efficiencies that hold down operating costs.

A substantial part of the growth in O&S costs appears to be directly related to weapons. Publically available data do not permit the identification of military personnel costs directly associated with the operation of military weapons and forces. But budget documents do identify the portion of the operation and maintenance (O&M) appropriation that finances most other costs used to operate forces. These O&M operating-force costs (which include most funds in Budget Activity 1 of the O&M appropriation) exclude military health care and other expenses not directly related to operating military weapons and forces.

Since fiscal year 2000 O&M operating-force costs (again adjusted for inflation and excluding wartime costs) have grown by about 35 percent, substantially exceeding the 20 percent growth that occurred in O&M as a whole. Some of this growth reflects improvements in weapon capabilities needed to meet evolving threats. Stealth, computerization, and overall complexity all influence the growth. As with acquisition costs, DoD needs to start programs well by trading off requirements against O&S costs.

While DoD has devoted much effort to controlling acquisition costs, it has not yet paid as much attention to O&S costs. The new affordability caps, which include O&S costs, provide a vehicle for increased scrutiny. DoD's September 2015 report states that weapon programs will be cancelled if affordability constraints cannot be met even after aggressive efforts such as cost control and changes in schedule and requirements. Cancelling a program due to unacceptably high O&S costs, or even considering such an action, would send a message that this budget behemoth must be taken seriously.

I don't want to suggest that controlling O&S costs is easy. It is difficult to predict future O&S costs, especially early in the life of a program when major tradeoffs can be considered. But difficult doesn't mean impossible. The Department needs to invest in better models that can be used early in the life of a program to help managers understand the effects of design changes on future O&S costs. The Department also needs to invest more in understanding what determines weapon operating costs and what can be done to hold down these expenses.

Commercial airlines, for example, trade off operating costs and performance during aircraft design. DoD should consider the same tradeoffs, which must occur early in a program's life. DoD might also want to look at O&S costs not just for an individual weapon system, but for a family of similar weapons. That would permit the Department to consider holding down costs by replacing older systems with a smaller number of new ones.

Congress can also play a role in slowing the growth of operating costs. For example, Congress can use hearings to focus attention on these costs. As I mentioned earlier, I would especially urge that this Committee and other defense committees use hearings to monitor DoD's progress in implementing the new affordability caps. Those hearings should focus on the O&S portion of costs.

Congress can also use reporting requirements to shine a spotlight on O&S costs. The Nunn-McCurdy legislation requires reporting on weapon programs that breach thresholds for growth in unit acquisition costs, thereby focusing senior-leader attention on these problem programs. It is time to consider similar reporting requirements associated with growth in O&S costs.

In sum, program managers supervising new weapon programs have much on their management plates. Tradeoffs between requirements and weapon costs represent one of their more important tasks, with tradeoffs between requirements and operating costs being particularly important from a budgetary standpoint. I believe that efforts to control weapon operating costs should be the next frontier for acquisition reform.

Resume for Robert F. Hale

The Honorable Robert F. Hale is currently a **Fellow at Booz Allen Hamilton**, where he represents the firm in public policy discussions and provides internal assistance on projects. From 2009 until 2014 Mr. Hale served as **Comptroller and Chief Financial Officer at the Department of Defense**. During those years he managed $600 billion budgets in time of war and oversaw efforts by the Department to minimize the problems caused by the 2013 sequestration and government shutdown. He also made significant financial improvements in defense financial management, making tangible progress toward auditable financial statements and establishing a course-based certification program for defense financial managers. From 1994 to 2001 Mr. Hale served as the **head of Air Force financial management**, managing that service's budgets and spearheading efforts to create a test-based certification program. Mr. Hale also spent 12 years as **head of the defense group at the Congressional Budget Office**, where he frequently testified as an expert witness before Congressional committees. He was the **Executive Director of the American Society of Military Comptrollers** and held analytic and management positions at LMI government consulting and the Center for Naval Analyses. Early in his career he served as a Navy officer on active duty and in the reserves.

Mr. Hale is Level 3 certified in Defense Financial Management and is a Certified Defense Financial Manager with acquisition specialty. He is a fellow in the National Academy of Public Administration and a past member of the Defense Business Board. Mr. Hale served as a Commissioner on the recent National Commission on the Future of the Army and an earlier commission on military health care.

Mr. Hale holds a B.S. with honors from Stanford University in statistics, an M.S. from Stanford in operations research, and an MBA from the George Washington University. He has received numerous awards from the Department of Defense and the federal government for distinguished public service including the Department of Defense Distinguished Public Service Award, the Joint Distinguished Civilian Service Award from the Chairman of the Joint Chiefs, and the GAO/OMB/Treasury award for distinguished lifetime accomplishments in federal financial management.

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Witness name: Robert Hale

Capacity in which appearing: (check one)

(•) Individual

( ) Representative

If appearing in a representative capacity, name of the company, association or other entity being represented: _____

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None			

Admiral James A. "Sandy" Winnefeld, Jr., USN (ret)

Sandy Winnefeld graduated from Georgia Tech with a degree in Aerospace Engineering and received his commission through the NROTC program. He began his naval service as a fighter pilot, flying the F-14 Tomcat during several deployments to the Arabian Gulf region, and serving as an instructor at the Navy Fighter Weapons School, also known as Topgun. During this period he also was senior aide to General Colin L. Powell.

After squadron command, he graduated from the Navy's nuclear power school and subsequently commanded USS CLEVELAND and USS ENTERPRISE. Later he simultaneously commanded NATO Joint Command Lisbon, Striking and Support Forces NATO, and the United States SIXTH Fleet. After serving as the Joint Staff Director of Strategic Plans and Policy, he assumed command of United States NORTHERN Command and the North American Aerospace Defense Command, also known as NORAD.

Sandy retired in August 2015 after serving four years as the ninth Vice Chairman of the Joint Chiefs of Staff. As the nation's number two ranking military officer, his portfolios included investment, personnel, strategy, policy, and operations, as well as participation as a member of the Deputies Committee of the National Security Council.

A frequently published author, he currently serves as Distinguished Professor at the Sam Nunn School International Affairs at Georgia Tech, where he is also a member of the Engineering Hall of Fame. He is also a senior non-resident fellow at the Belfer Center for Science and International Affairs of the Kennedy School of Government at Harvard University. He also serves on several boards and in advisory positions in the business community.

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Witness name: James A. Winnefeld, Jr

Capacity in which appearing: (check one)

(●) Individual

( ) Representative

If appearing in a representative capacity, name of the company, association or other entity being represented: N/A

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QUESTIONS SUBMITTED BY MEMBERS POST HEARING

FEBRUARY 3, 2016

QUESTIONS SUBMITTED BY MR. THORNBERRY

Mr. THORNBERRY. Specifically, what are the root causes of operating and support (O&S) cost growth related to weapons? Does the acquisition system itself, or any of its processes and features, contribute to O&S cost growth? If so, how could the acquisition system be changed to combat the growth of O&S costs?

Mr. HALE. Research suggests that key drivers of O&S costs include manpower, fuel, and maintenance. These in turn are influenced by factors including weight, computerization, and special characteristics such as stealth. Unfortunately, there has only been limited research into the specific causes of O&S growth. I believe that Congress should direct DOD to conduct more careful research into this critical topic, perhaps making use of its FFRDCs to help provide analysis. Congress should also direct the Department to improve the parametric models used to project O&S costs. How does the acquisition process affect O&S costs? The current incentives in the acquisition process lead program managers (PMs) to focus heavily on acquisition costs, which will be known during their tenure as PMs. O&S costs will occur well after PMs leave their jobs and probably after they retire from the military. So there is limited incentive to focus on them. DOD and Congress need to consider ways to change these incentives. Congress could direct DOD senior leaders to certify that an O&S estimate has been prepared and reviewed at each of the acquisition milestones. Because of uncertainty regarding early O&S estimates, Congress should leave unchanged the requirement to report O&S costs in the SARs starting at Milestone B. This might prompt more attention to O&S. Once the Department has developed better tools for creating O&S estimates, it may be appropriate to require reporting of major breaches of O&S estimates in a manner that is now done for procurement costs under the Nunn-McCurdy legislation.

QUESTIONS SUBMITTED BY MR. ROGERS

Mr. ROGERS. (a) Why is a survivable and endurable NC3 system important for this country? (b) As you know, our NC3 system is a system of systems composed of over 103 different program elements. These systems are scattered across the CIO, Navy, Air Force, STRATCOM and NORTHCOM. Is this a good system for ensuring the successful integration and operation of a survivable and endurable communications capability for the nation's senior leaders? (c) Does the Air Force, which owns 70% of these programs, appropriately prioritize budget resources for NC3 compared to tactical aviation?

Admiral WINNEFELD. (a) Our nuclear deterrent is only as effective as the command and control that enables it to function. Nuclear Command and Control (NC2) is the exercise of authority and direction, through established command lines, over nuclear weapon operations by the President. NC2 is supported by a survivable network of communications and warning systems that ensure dedicated connectivity from the President to all nuclear-capable forces. This survivable network of communications is the Nuclear Command, Control, and Communications (NC3) System. A survivable, enduring NC3 is a prerequisite for an effective nuclear deterrent. The fundamental requirements of NC2 are paramount; it must be assured, timely, secure, survivable, and enduring in providing the information and communications for the President to make and communicate critical decisions without being constrained by limitations in the systems, the people, or the procedures that make up the systems used by the Nuclear Command and Control System.

(b) The present U.S. NC3 architecture is described in two layers. The first layer is the day-to-day and crisis architecture, which can also be described as a "thick-line." This architecture supports current U.S. national policy in that it responds under all conditions in both peacetime and war to provide the means to exercise positive control and direction by the President, the Secretary of Defense, and Combatant Commanders; provides secure, reliable, immediate, and continuous access to the President; and provides robust command and control over nuclear and supporting government operations.

The second layer provides the survivable, secure, and enduring architecture known as the "thin-line." The thin-line responds to policy that requires assured, un-

broken, redundant, survivable, secure, and enduring connectivity to and among the President, the Secretary of Defense, the CJCS, and the designated commanders through all threat environments to perform all necessary NC2 functions. The thin-line NC3 architecture must be sustained and supported during any modernization effort to ensure presidential requirements can be met.

(c) The Council on Oversight of the National Leadership Command, Control and Communications System (CONLC3S) has been instrumental in bringing together the appropriate stakeholders, including the Air Force, and working to prioritize NC3 modernization efforts. I believe we are achieving proper prioritization of NC3 modernization as a result of the Council's work.

Mr. ROGERS. Currently, our efforts to develop left-of-launch and homeland cruise missile defense are ad hoc depending on specific senior leader interest. Is this an appropriate set-up for the development of these capabilities? If not, what would you recommend?

Admiral WINNEFELD. Development of left-of-launch and homeland cruise missile defense capability development is not "ad-hoc". The Deputy Secretary of Defense through his Advanced Capability Deterrence Panel has specifically chartered an organization supported by the Joint Staff, Combatant Commands, and Defense Agencies to address left-of-launch capability development.

Execution of homeland cruise missile defense operations are clearly the responsibility of the Commander of U.S. Northern Command (NORTHCOM) and the North American Aerospace Defense Command (NORAD). These requirements are derived from the national strategic direction, which result in operational and contingency plans developed by the Combatant Commands. A limited capability with clear chain of command, exists today, with capabilities provided by the services. NORAD–NORTHCOM is also directly involved in identification and development of additional service capabilities needed to meet future threats.

Mr. ROGERS. (a) How satisfied are you with the current division of responsibility between DOE and DOD for the modernization of the nuclear deterrent? Is this system serving the nation well? (b) How often did one or the other departments make a commitment in the Nuclear Weapons Council that it did not perform on later?

Admiral WINNEFELD. DOD and DOE/National Nuclear Security Administration (NNSA) both face challenges in modernizing the platforms, warheads, and the supporting infrastructure over the next two decades to sustain the Triad and ensure the U.S. nuclear deterrent remains safe, secure, and effective. Regardless of the division of responsibilities, the biggest challenge to-date and into the future for both Departments is large required investments over many programs under constrained budgets. Regarding the DOE/NNSA warhead modernization, I believe management improvements may be possible under different governance structures but I also believe DOD and DOE/NNSA can effectively manage this under the current structure through the Nuclear Weapons Council (NWC). To do so, increased and continued transparency and collaboration regarding DOE/NNSA budgets and priorities is required to best serve the nation. While I do not recall a specific instance of either Department not delivering on a commitment within the NWC, budget pressures and changes in program scope or priorities caused re-evaluation of the overall NWC modernization plan and adjustments to warhead modernization programs.

QUESTIONS SUBMITTED BY MR. COFFMAN

Mr. COFFMAN. The panel highlighted the importance of independent cost estimates. Please identify when and how DOD first looks at program affordability. What are your thoughts on looking at affordability earlier in the acquisition process?

Ms. FOX. My experience in the Department convinced me that affordability was usually considered at every point in the acquisition process. Affordability is always a factor in the Analysis of Alternatives (AOAs) and is often a key area of assessment at Milestone A, as well as all subsequent milestones. I understand the Services are now begitming to establish affordability goals early on to enable stronger leadership communication to the program manager of what is and what is not acceptable from a program-cost perspective.

While it is great that the Services are beginning to establish their own affordability goals, I would like to add my concern about a risk to affordability assessments and the quality of AOAs for the future. I point to the recently released report to the Congress from the Chief of Staff of the Army regarding acquisition authorities (ref. b). In that report, the Army writes:

"..., giving the respective Service full oversight of their analysis of alternatives associated with their programs would also go further toward aligning decision authority with the responsible party. The Service, as the decision-making authority,

should have the responsibility for deciding what analysis needs to be done and when that analysis is adequate to inform their decision-making."

CAPE's oversight of AOAs ensures that the Services examine a reasonable range of alternatives, include quality affordability analysis, adhere to good analytic processes, and develop measures of effectiveness and performance that sufficiently articulate the benefits and risks accrued from the alternatives. I know of cases where the Service analysis was not adequate to inform decision making, so I worry about excluding CAPE oversight.

I must add that what is "affordable" today may change over the course of a program's life due to many external factors such as: the evolution of the threat, defense budgets, and competing funding demands from both the inside and outside any one program's portfolio. And, as we discussed during my and my colleagues' testimony, operating and support costs are a critical element of that affordability equation. We are just beginning to develop the tools, databases, and methodologies to improve our estimating capabilities for these ownership costs. We need to recognize the uncertainty in these early estimates, and ensure we account for that uncertainty when making decisions. The Department's ability to measure a program's cost, in particular its ownership costs, will improve over time as the system's components and overall reliability become directly measurable, instead of analytically estimated, and understanding of the system's sustainment approach grows.

To be most effective, affordability goals should be established early; have a defined, logical basis agreed to by stakeholders; be documented and transparent to oversight organizations; and be continuously measured against the latest cost estimates. And these goals must also be continually re-evaluated in light of the overall national security environment.

Mr. COFFMAN. The panel highlighted the importance of maintaining CAPE oversight of the independent cost estimate (ICE) process. What can Congress due to empower a robust, independent cost estimate process?

Ms. FOX. There are two important ways Congress can strengthen the independent cost estimate process. First, Congress should clarify the Office of Cost Assessment and Program Evaluation (CAPE) role as the lead for all Acquisition Category (ACAT) I ICEs, regardless of who has Milestone Decision Authority (MDA). As I stated in my testimony, I believe recent changes from the 2015 National Defense Authorization Act (NDAA) have created uncertainty in the Title 10 language regarding CAPE's specific role for ACAT I programs when the Milestone Decision Authority is not the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)), which is becoming increasingly more common.

Today, for the majority of the ACAT I programs for which USD(AT&L) is not the MDA, CAPE delegates, and closely monitors, the ICE development to the Service cost centers. Additionally, CAPE reports on these Service cost center ICEs in its annual report to Congress. As the Service Acquisition Executives (SAEs) assume the role of MDA on an increasing number of ACAT I programs, I fear there will be a strong push to limit CAPE's authority for development and/or oversight of the ICEs and for setting the relevant estimating policies and procedures. I need only point to the recently released report to the Congress from the Chief of Staff of the Army regarding acquisition authorities (ref. b). In that report, the Army writes:

"The responsible Service should also have responsibility for cost estimation supported by the validation of a third party and reported where appropriate to Congress. As the Services are responsible for making tradeoffs, they should also have control over the methodologies, assumptions, and level of rigor necessary to make decisions."

In my view, this is a slippery slope. The cost group within CAPE was created years ago to ensure consistent application of rigorous costing methodologies and to document clearly articulated program assumptions as a basis for cost estimates. CAPE has since further improved the cost-estimating process through a deliberate collection of historical cost and schedule data that add further rigor. We cannot afford to lose ground here.

I believe the reform changes that began with the Weapon System Acquisition Reform Act in 2009 gave CAPE exactly the right authorities to ensure rigorous cost-estimating processes continue. CAPE's authority to review Service efforts and, if necessary, take back the responsibility of producing the ICE ensures that the Services properly collect data and perform quality cost analyses. In turn, this oversight ensures programmatic decisions are informed by the best estimates of cost. I fear the loss of CAPE's authority will quickly erode the overall cost community's ability to collect necessary data and information and to establish and govern cost estimating policies and procedures within the Services.

The second way Congress can strengthen the independent cost estimating process is to provide CAPE, and, by extension, the entire DOD cost community, with the

authority to establish the data collection requirements necessary to develop sound estimates. Today the acquisition community largely holds the authority for which data are collected and when, and we often find data are collected without a strategic perspective. We want a holistic and long-term view that understands the benefits of a comprehensive data collection process.

The lack of authority to collect the data the cost community requires for independent cost analyses will impede the ability of the cost community to produce the high quality ICEs that the Department and Congress rely so heavily upon to inform resource allocation and decision making. Acquisition streamlining in the 1990s led to the wholesale removal of cost data collection on contracts that—to this day—negatively affects the quality of cost estimates produced by the DOD cost community. Even today, virtually no cost data is collected on ACAT II and III programs due to the acquisition community's cultural reluctance to do so.

Providing CAPE with the authority to define and ensure implementation of the cost and related data collection processes, and to make available these important resources to the broader cost community within the Department, will continue to improve cost estimates Department-wide and significantly improve decision-making. I should add further that CAPE has been working to modernize the collection process and reduce the cost burden of collecting data from defense contractors.

There is also a fear that CAPE will overreach on this data collection authority, especially when it comes to commercial items. As I learned as the Director of CAPE, if a commercial item's price is regulated through a competitive marketplace, CAPE has little need, or even interest, in collecting detailed cost data on the item. It is only when items are not actually commercial and are not subject to normal commercial market price regulating mechanisms that the government has a right to know the cost of those systems. It is on these systems that CAPE must have the authority to set policies for the collection of cost data.

Mr. COFFMAN. Please discuss the DOD Comptroller's role in affordability discussions and cost-schedule-performance trade space discussions. When in program development does the DOD Comptroller first participate in affordability discussions? How is the Comptroller involved during Milestone Decision Authority decisions for MS A, B, and C?

Mr. HALE. During my tenure as Comptroller, I was regularly involved in senior meetings (chaired by the Deputy Secretary) that assessed acquisition budget proposals. Affordability was often discussed, especially as it related to the five-year budget plan. The discussions almost always focused on acquisition costs, rarely on O&S costs. As Comptroller I was rarely involved personally in the milestone decision meetings for weapons. However, my senior staff attended these meetings and, along with CAPE analysts, raised affordability issues as appropriate (again focusing almost always on acquisition costs). My senior staff provided me feedback on key results from the meetings.

Mr. COFFMAN. Sustainment costs are still a significant portion of program costs. Efforts to consider total life cycle costs are still challenging. What can be done to be sure we understand the total costs for a program and the impact on budget beyond the FYDP?

Mr. HALE. Sustainment costs make up more than half of the life cycle costs of a typical weapon. But DOD still pays relatively little attention to these costs during the design of new weapons. I would suggest two approaches as first steps toward increasing the attention paid to sustainment costs. First, I believe that Congress should direct DOD to conduct more careful research into this critical topic, perhaps making use of its FFRDCs to help provide analysis. Among other topics, this research seek a better understanding of what drives O&S costs. Congress should also direct the Department to improve the parametric models used to project O&S costs. DOD has better models for predicting acquisition costs early in the life of a weapon compared to those available to forecast O&S. Second, DOD and Congress need to consider ways to change the incentives in the acquisition process. Currently those incentives cause program managers to focus almost entirely on acquisition costs, because these costs will be apparent during their tenure as the manager. To help change incentives, Congress could direct DOD senior leaders to certify that an O&S estimate has been prepared and reviewed at each of the acquisition milestones, starting at Milestone A. Because of the uncertainty regarding early estimates, Congress should leave not change the current requirement that O&S costs be reported in the SARs starting at Milestone B. This certification will hopefully lead to more attention to O&S. Once the Department has developed better tools for O&S estimates, it may be appropriate to require reporting of major breaches of O&S estimates in a manner that is now done for procurement costs under the Nunn-McCurdy legislation.

Mr. COFFMAN. How do we both lock in requirements to have stable estimates and funding, yet also have flexibility to adapt to new innovations and new threats?

Admiral WINNEFELD. Stability is most important for major weapons systems, including large "platforms." Agility should be largely found in flexible "payloads," whether they are organic capabilities or weapons. Thus, the Department should continue its efforts to do rapid prototyping for payloads, while ensuring a predictable and stable requirements and acquisition path for major platforms. As such, it is possible to lock in requirements early provided that the system that is ultimately derived from this initial requirement set is sufficiently agile to accommodate both new innovations and new threats. That means weapon system platforms in the future must be designed around adaptable "plug-and-play" architectures that will allow integration of future payloads and modernization of platform components relatively easily and at a reasonable cost. There also must be suitable funding agility available to the requirements sponsor to enable systems to evolve to counter new threats, mitigate technology obsolescence, and achieve advantage from emerging technology opportunities. Additionally, having discretionary money up front for the Department to begin to advance a new requirement in parallel with the budget cycle would help avoid early obsolescence issues.

As an important aside, recently JCIDS incorporated procedures for Critical Intelligence Parameters (CIP) of threat-sensitive Key Performance Parameters. This integration of intelligence support to acquisition in the requirements community facilitates risk assessments and mitigation of requirements determinations to be responsive to emerging threats.

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