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ON

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2017

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTEENTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON STRATEGIC FORCES HEARING

ON

FISCAL YEAR 2017 BUDGET REQUEST FOR DEPARTMENT OF DEFENSE NUCLEAR FORCES

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FISCAL YEAR 2017 BUDGET REQUEST FOR DEPARTMENT OF DEFENSE NUCLEAR FORCES

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES,
Washington, DC, Wednesday, March 2, 2016.

The subcommittee met, pursuant to call, at 2:03 p.m., in room 2118, Rayburn House Office Building, Hon. Mike Rogers (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. MIKE ROGERS, A REPRESENTATIVE FROM ALABAMA, CHAIRMAN, SUBCOMMITTEE ON STRATEGIC FORCES

Mr. ROGERS. Good afternoon. This hearing of the House Armed Services Subcommittee on Strategic Forces will come to order. We welcome you to our hearing, which will be on the President's fiscal year 2017 budget request for the Nation's nuclear forces. We thank our witnesses for being here and for all the time that they put into preparing for these hearings. I know it is a taxing process, but it is very helpful to us.

We have with us today, as witnesses, the Honorable Robert Scher, Assistant Secretary of Defense for Strategy, Plans, and Capabilities; Dr. Arthur Hopkins, who is performing the duties of the Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs; General Robin Rand, Commander, Air Force Global Strike Command; and Vice Admiral Terry Benedict, Director of the Navy's Strategic Systems Programs.

This is our third hearing on the budget request for fiscal year 2017. At our first two hearings, we heard from your partners over at the Department of Energy and from senior leaders at STRATCOM [U.S. Strategic Command] and OSD [Office of the Secretary of Defense]. As my colleague and friend from Tennessee, Ranking Member Jim Cooper, said at both these hearings, we have a strong bipartisan agreement that nuclear deterrence is the Nation's number one priority defense mission, and we must recapitalize our nuclear forces.

From the Secretary of Defense, to the service secretaries and chiefs, to the key leaders here in Congress, we are all in resounding agreement. Together, we know not only is this coming nuclear modernization affordable, it is the highest priority, and because it is our top priority, it will be robustly supported and funded, even if it comes at the expense of other capabilities.

This is a hard-won bipartisan consensus on defense priorities, and in a tremendously difficult budget environment. At the heart of this consensus is the collective understanding that these pro-

grams are not optional, that they are, instead, the foundation of U.S. security and international stability, and now we have to get on with the nitty-gritty of actually carrying out those programs.

The Air Force and the Navy must request the funding necessary to manage the program well, while Congress must do its part to authorize, appropriate, and oversee them. We will scrub your requests hard, and press you equally hard to ensure you are managing them for efficiency and success. Together, I am confident we will ensure the U.S. nuclear deterrent remains what Secretary Carter calls, quote, "the bedrock of our security and the foundation for everything we do," close quote.

Thank you, again, to our witnesses. I look forward to our discussion.

And with that, I would like to turn it to my friend and colleague from Tennessee, the ranking member, Mr. Cooper, for any opening statement he may have.

[The prepared statement of Mr. Rogers can be found in the Appendix on page 29.]

STATEMENT OF HON. JIM COOPER, A REPRESENTATIVE FROM TENNESSEE, RANKING MEMBER, SUBCOMMITTEE ON STRATEGIC FORCES

Mr. COOPER. Thank you, Mr. Chairman. I, too, would like to welcome the witnesses. And since you quoted me in your opening statement, I can think of no better words to use than the ones you did, and I am proud to be part of this rare, perhaps unique, oasis of bipartisanship in the United States Congress. Thank you, Mr. Chairman.

Mr. ROGERS. Thank you.

And now we will tell all the witnesses we will accept your written statements for the record, without objection. And we will recognize the witnesses to summarize their statements for 5 minutes each.

We will start with Secretary Scher. You are recognized for 5 minutes.

STATEMENT OF HON. ROBERT SCHER, ASSISTANT SECRETARY OF DEFENSE FOR STRATEGY, PLANS, AND CAPABILITIES, U.S. DEPARTMENT OF DEFENSE

Mr. SCHER. Thank you, Chairman Rogers, Ranking Member Cooper, and distinguished members of the subcommittee. Thank you for the opportunity to testify on the President's fiscal year 2017 budget request, as it relates to nuclear policy and strategy.

While the administration's ultimate goal is a world without nuclear weapons, the President has been consistent and clear in his commitment to maintaining a safe, secure, and effective nuclear arsenal for as long as nuclear weapons exist. Effective deterrence remains best served by sustaining the nuclear triad and dual-capable aircraft [DCA], with a diverse range of nuclear explosive yields and delivery modes. The triad and DCA provide the credibility, flexibility, and survivability to meet and adapt to the challenges of a dynamic 21st century security environment without the need to mirror every potential adversary system-for-system and yield-for-yield. In addition to positioning us to address threats as they

emerge, this approach, with its inherent flexibility, bolsters strategic stability by decreasing incentives for a future arms race.

The President's nuclear sustainment and modernization plan is also consistent with his nonproliferation and disarmament objectives. It sustains a safe, secure, and effective nuclear deterrent, assures allies that they don't need their own nuclear arsenals, retains leverage for future arms control agreements, and reduces the numbers and types of weapons.

The current stockpile is a dramatic departure from the Cold War. We have reduced from 23 nuclear warhead types in 1990 to 12 types today, and the B61–12 bomb life extension program is on track to allow us to reduce further to 6 warhead types by the mid 2020s. The B61–12 will replace multiple existing variants that have different explosive yields. It will have lower yields than some of these variants, but will not expand the range of yield options available in the current stockpile. The B61–12 will have a measure of improved accuracy as well to give it the same military capabilities as the higher-yield bomb it replaces.

My written testimony, as you know, it goes into greater detail on our modernization program and addresses the issues raised in your invitation letter to testify, but I was asked to focus, in particular, on the need for the long-range stand-off missile, or the LRSO, to replace the aging air-launch cruise missile, or ALCM, and so I will focus on that for the remainder of my time today.

The administration's decision to field a modern ALCM replacement is essential to maintaining the ALCM's unique contribution to stable and effective deterrence. The current system is already decades beyond its planned service life and its viability will be challenged over the next decade by advanced air defenses.

Cruise missiles provide capabilities that complement rather than duplicate that of a stealth bomber. Stand-off capability extends the effective range of our bomber fleet and complicates the air defense problem facing any country seeking to negate the air component of our deterrent. As air defense capabilities continue to improve and proliferate, we cannot assume our technological lead will forever ensure unchallenged U.S. bomber operations over any target in any theater.

The ALCM provides an important contribution to the range of credible options available to the President for responding to nuclear attack. And because aircraft can be visibly deployed and flown during a crisis, they provide a forceful reminder to any adversary contemplating aggression that the risk it faces is real. The ability to respond proportionately to a limited nuclear attack strengthens our ability to deter such attacks in the first place. This is critical in a world where we must not only avoid unintended escalation, but also deter deliberate nuclear escalation like that envisioned in Russia's current strategy.

Retaining a diverse range of nuclear deterrence options does not mean a lowered nuclear threshold or a higher likelihood of U.S. nuclear use. Indeed, the United States has long maintained a high threshold for nuclear use at the same time that we possess a diverse range of nuclear forces and response options.

The LRSO will contribute to strategic stability by retaining a response option that does not pose a threat of a disarming surprise

attack against Russia or China. The process of alerting strategic bombers is observable, and the aircraft and the missiles must spend hours flying towards their targets.

Finally, the LRSO will utilize a refurbished version of the current ALCM warhead. The number of refurbished warheads will not exceed the current inventory of ALCM warheads, and is far lower than the approximately 1,000 missile bodies needed to support the deployed force and testing requirements over the projected lifetime of the system.

Let me conclude by reiterating that the administration's nuclear sustainment and modernization plan is necessary, and it is affordable if prioritized appropriately by the Department, Congress, and the Nation. Further delays to the program will put the safety, security, and effectiveness of our nuclear forces at significant and unacceptable risk. To be clear, our choice is not between keeping our current forces or modernizing them; rather, the choice is between modernizing those forces or watching a slow and unaccepted degradation in our ability to deter.

We look forward to this committee's continuing support of our collective efforts to ensure the United States is able to meet the security challenges we face today as well as those ahead. Thank you, again, for the opportunity to testify, and I look forward to your questions.

[The prepared statement of Mr. Scher can be found in the Appendix on page 31.]

Mr. ROGERS. Thank you, Mr. Secretary.

Dr. Hopkins, you are recognized for 5 minutes to summarize your statement.

STATEMENT OF ARTHUR HOPKINS, ACTING ASSISTANT SECRETARY OF DEFENSE FOR NUCLEAR, CHEMICAL, AND BIOLOGICAL DEFENSE PROGRAMS, U.S. DEPARTMENT OF DEFENSE

Dr. HOPKINS. Thank you. Chairman Rogers, Ranking Member Cooper, and distinguished members of the subcommittee, thank you for this opportunity to discuss the Department's 2017 budget request for nuclear deterrent systems.

In addition to serving as Principal Deputy Assistant for Nuclear, Chemical, and Biological Defense Programs, I am the acting staff director for the Nuclear Weapons Council. The Council provides an overarching coordinated vision and strategy for the nuclear enterprise, including nuclear warheads and delivery platforms. It synchronizes the Department of Defense and Energy efforts to ensure a safe, secure, reliable, and effective stockpile.

The Nation's nuclear forces are the Department's highest priority. The nuclear mission continues to be fundamental to our Nation's security strategy, and it ensures that we maintain our extended deterrence commitments to our allies.

The Nuclear Weapons Council has developed a strategic plan to integrate all three components of the nuclear enterprise: warheads, platforms, and infrastructure. Portions of the plan are underway, including production of the W76–1 refurbished warhead and design engineering for the W88 warhead modernization for the Navy's

submarine-launched ballistic missiles, as well as the B61–12 bomb life extension for both strategic missions and extended deterrence.

In fiscal year 2017, the National Nuclear Security Administration, NNSA, will continue to deliver W76–1 warheads for the Navy's Trident II D–5 missiles, and will complete production in 2019. The W88 warhead alteration effort, also for the D–5 missile, is on schedule to deliver the first production unit in December 2019. The B61–12 bomb life extension program is also on schedule to deliver a first production unit in March of 2020. The B61–12 will enable a reduction in the total numbers and types of nuclear weapons in the stockpile.

Modernizing our nuclear delivery platforms is also essential to nuclear deterrence. In fiscal year 2017, the Defense Department plans to continue to fund several delivery systems: first, the *Ohio*-class submarine replacement and its Trident II D–5 life-extended missile; second, sustainment of the Minuteman III intercontinental ballistic missile and its follow-on capability, the ground-based strategic deterrent; third, upgrades to the B–2 and the B–52H heavy bombers; fourth, the development of a long-range strike bomber, the B–21; and finally, the development of a long-range stand-off cruise missile, the LRSO, to replace the aging air-launched cruise missile. The LRSO will complement penetrating bomber capability by extending its effective range, and will complicate adversaries' air defense operations.

With respect to the Nation's nuclear enterprise, the Department's fiscal year 2017 budget addresses systemic issues that were identified in the 2014 enterprise reviews. The budget request includes resources to sustain and modernize our nuclear forces and ensure a safe, secure, and effective nuclear deterrent.

The strategy also requires investment by the Department of Energy in nuclear infrastructure. The Department supports National Nuclear Security Administration's efforts to achieve a responsive infrastructure for our future stockpile.

Our fiscal year 2017 budget request is important for sustaining and revitalizing the Nation's nuclear deterrent. We ask that you support both the Department of Defense and Department of Energy's budget requests in this area.

My written testimony has more detail, and I ask that it be included in the record of this briefing. Thank you.

[The prepared statement of Dr. Hopkins can be found in the Appendix on page 40.]

Mr. ROGERS. Thank you, Dr. Hopkins.

General Rand, you are recognized for 5 minutes to summarize your statement.

STATEMENT OF GEN ROBIN RAND, USAF, COMMANDER, AIR FORCE GLOBAL STRIKE COMMAND

General RAND. Thank you. Thank you, Chairman Rogers and Ranking Member Cooper and distinguished members of the committee. And thank you for allowing me to appear before you today to represent the men and women of Air Force Global Strike Command.

As you know, Air Force Global Strike Command was created to provide a focus on the stewardship and operation of two legs of the

Nation's nuclear triad, while also accomplishing the conventional global strike mission. A key to our continued success will be our ability to modernize, sustain, and recapitalize our forces.

Our mission set is always evolving and growing in order to ensure we continue to provide effective forces for those combatant commanders. Part of accomplishing this goal is to make sure we are rightsized with our manpower and resources, in balancing those efforts with ongoing modernization and recapitalization programs.

Our airmen in the missile fields are accomplishing a critical mission for this Nation: They are operating, maintaining, and securing the most responsive leg of the nuclear triad. However, we must continue efforts to modernize the Minuteman III weapons system where appropriate until we bring the ground-based strategic deterrent online. This is an absolute critical national interest that will provide strategic deterrence and, if needed, global strike for years to come.

Additionally, I strongly endorse replacing the UH–1N in the most expeditious manner possible to ensure our missile field remains secure.

Our diverse bomber forces made up of the B–1, B–2, and B–52 deter our potential adversaries and assure our allies across the globe. But when that is not enough, they execute a range of missions, including long-range global strike and close air support in theater. As you are aware, the B–1s have departed the CENTCOM [U.S. Central Command] AOR [area of responsibility] to help facilitate needed upgrades. These airmen have done an amazing job for many years, and I am proud of each and every one of them.

Air Force Global Strike Command stands ready to support any combatant command with our other capable platforms to ensure there is no gap in requirements coverage. Therefore, I have directed our B–52 wings to be prepared to backfill the B–1s later this spring should we be asked to do so.

As with our missile forces, we continue to look forward with our bomber forces. Last week, Secretary James revealed the designation for our newest bomber, the B–21. Both the B–21 and the long-range strike—or excuse me—stand-off weapon will ensure the United States can continue to hold any target at risk as potential adversaries continue to modernize their offensive and defensive capabilities.

I am aware that one of the big reasons I am here today is to answer any questions on the command's progress in addressing the Nuclear Enterprise Review findings. We have closed over 300 action items that complement the ongoing review efforts. We have reinvigorated ICBM [intercontinental ballistic missile] operations and are effectively making positive cultural changes throughout the community. We have also overhauled the B–52 training, and streamlined other air crew programs. Additionally, Air Force Global Strike Command has been declared the lead command for nuclear command and control and communications, or NC3, systems throughout the Air Force. And to recognize the absolute criticality of these systems, NC3 has been declared a weapons system, which means it is tracked, sustained, and modernized just like the rest of the weapons systems in our Air Force.

But let me be clear: We are not done. Culture change is not something that you can just flip a switch on. We must foster a culture where we aren't afraid to question how things are done. Innovative airmen should have the way to push their ideas to the top, and I will not lose sight of how far we have come, but also that we never stop working together.

Mr. Chairman, I want to thank you again for the opportunity to appear before the committee to highlight the great airmen of Air Force Global Strike Command. I look forward to your questions.

[The prepared statement of General Rand can be found in the Appendix on page 51.]

Mr. ROGERS. Thank you, General.

Admiral Benedict, you are recognized for 5 minutes to summarize your statement.

STATEMENT OF VADM TERRY BENEDICT, USN, DIRECTOR, NAVY STRATEGIC SYSTEMS PROGRAMS

Admiral BENEDICT. Chairman Rogers, Ranking Member Cooper, distinguished members of this committee, thank you for the opportunity to testify before the Subcommittee on Strategic Forces.

My mission as the Director of Strategic Systems Programs [SSP] is to design, develop, produce, support, and ensure the safety and security of our Navy's strategic deterrent capability, the Trident II D–5 strategic weapons system.

This afternoon I would like to talk about three specific areas: nuclear weapons safety and security, the Trident II D–5 life extension efforts, and collaboration with the Air Force on weapons system commonality.

First, my top priority is, and always will be, the safety and the security of the Navy's nuclear weapons. Custody and accountability of the nuclear assets entrusted to the Navy are the cornerstones of this program. Our approach to the nuclear weapons mission is to maintain a culture of excellence and self-assessment that produces the highest standards of performance and integrity.

Second, the Navy is proactively taking steps to address aging and technology obsolescence. SSP is extending the life of the Trident II D–5 strategic weapons system to match the *Ohio*-class submarine service life and to serve as the initial baseline mission payload for the *Ohio* replacement submarine platform. This is being accomplished through a life extension program for all of the Trident II D–5 strategic weapons sub systems, to include launcher navigation, fire control, guidance missile, and reentry. In November of 2015, the USS *Kentucky* conducted her demonstration and shakedown operation, launching two D–5 life extension missiles, marking 157 out of 159 successful launches over the last 26 years. This milestone continues to ensure a sustainable sea-based strategic deterrent capability.

Finally, I fully support strategic collaboration between the services. The Navy and the Air Force are both addressing challenges in sustaining aging strategic weapons systems. As a result, I remain committed to my belief that commonality between the ground-based strategic deterrent [GBSD] and the Trident II D–5 will improve affordability while reducing risks to ensure a safe, secure, effective, and credible nuclear deterrent.

Nine joint teams have identified numerous opportunities where commonality has the potential to reduce not only cost, but also risk in the upcoming Air Force GBSD program, as well as the follow-on D–5 Navy effort.

I am concerned that without proactive leadership involvement, we will miss the opportunity to take advantage of the team's effort as we transition to execution. Leadership commitment and focus are required to accomplish this undertaking and ensure its success.

Thank you for the opportunity to testify, and at this time, I would be pleased to take your questions.

[The prepared statement of Admiral Benedict can be found in the Appendix on page 68.]

Mr., ROGERS. Thank you, Admiral Benedict.

I will now recognize myself for the first series of questions.

General Rand, you made reference in your opening statement to the Minuteman III system, and we know it has got 1970s technology and it is degrading quickly, but you also know there are critics out there who are saying that we should slip the GBSD program to make this nuclear modernization bill a little bit more manageable. I don't agree with that thinking, but I am interested in your thoughts on the matter.

General RAND. Sir, I agree with you. I believe that we need to continue to fund for the GBSD and have it meet a fully operational capability no later than 2030. My large reason for that is the Minuteman III with each year becomes more and more obsolete, and I am concerned that if we don't replace it, that the enemy gets a vote and we will not be able to provide the capabilities that are needed with the current system.

Mr. ROGERS. Talk about that. Why would it be cheaper to have a new system as opposed to just indefinitely life extending the Minuteman III?

General RAND. I am not the expert, but I believe any slaps that you would do on the Minuteman III would be very costly and it won't give us the enhancements that we need that keeps us on the leading edge. So we spend the money, but we don't get the benefit of the modernized and improved capabilities.

Mr. ROGERS. Secretary Scher and Dr. Hopkins, why is the administration proposing to pursue the LRSO cruise missile, particularly if the U.S. will already have a penetrating bomber in the B–61 nuclear gravity bomb? Secretary Scher, you start.

Mr. SCHER. The importance of having both the ability to have a penetrating bomber with a gravity bomb as well as having LRSO be able to be—from that same platform is that it complicates the adversaries' planning. Also, we can't expect that always we will be able to circumvent any advanced air defense systems from any adversary, so having the ability to launch from stand-off ranges will be important. And further, I would like to present the President with multiple options within his air leg that don't include mandating that it must be a manned bomber overflying enemy territory with a gravity bomb.

Mr. ROGERS. Dr. Hopkins, do you have anything else?

Dr. HOPKINS. I would agree with those three reasons. And in particular, I would like to emphasize the need for survivability and penetration. We don't know how sophisticated enemy defenses are

going to be 10, 20, 30 years from now, and having that capability is very important to us for flexibility.

Mr. ROGERS. Well, as you all know, some people are calling the LRSO destabilizing. Obviously, the administration doesn't share that viewpoint. Can you enlighten us on the administration's perspective?

Mr. SCHER. Absolutely, Congressman. First, this is not creating a new capability that is suddenly destabilizing the—having an air-launched cruise missile is something that we have in the force now, it is a capability that exists, and I would argue it is not being seen as destabilizing up to this point. So one that is a survivable one, I believe, is actually—continues the same capability and, hence, is not destabilizing.

I would also note that using this leg of the triad, in fact, is one that is most easily seen by any potential adversary. You must generate the bomber force, you have to—it then has to fly, as I said, for hours. So it is a well-known and well-seen and observable piece of the arsenal in the triad, which, I think, means to me that it is not a destabilizing weapon unto itself. Having a weapon that is not able to penetrate enemy airspaces, frankly, I would argue is far more destabilizing and not knowing what is going to be effective and what isn't, so we really need to modernize this piece of the air triad.

Mr. ROGERS. Staying on the same subject, General Rand, what is your professional military opinion on why we need the LRSO?

General RAND. Mr. Chairman, I think it is absolutely critical that we have an LRSO, not only for the new B–21, but also for our B–2 and B–52, and that is largely because of the ever increasing anti-access/area denial that we are facing, and for survivability, we need to have a stand-off capability, period, dot.

Mr. ROGERS. Are you and the Air Force taking additional requirement and putting it into program plans?

General RAND. Absolutely, sir. It is fully funded through the FYDP [Future Years Defense Plan].

Mr. ROGERS. When do you expect it to be fielded?

General RAND. Sir, the first one, from NNSA, my understanding from General Klotz, was delivery in 2025, and we will get our first one, we are tracking for 2026.

Mr. ROGERS. Great, thank you.

Secretary Scher, we are putting a series of charts from DOD [Department of Defense], CBO [Congressional Budget Office], and the CSIS [Center for Strategic and International Studies] up on the screens that show the so-called bow wave of spending that is coming on nuclear modernization.

I would like to introduce those charts for the record. Without objection, so ordered.

[The charts referred to can be found in the Appendix beginning on page 87.]

Mr. ROGERS. While spending on nuclear recapitalization will, no doubt, increase as we head into 2020, the take-aways from these charts is that, one, spending on the nuclear weapons will remain around 7 percent of the budget, even as we peak in the 2020s, which is far less than historical norms; and two, the bow wave for modernization spending on nuclear forces is actually small as a

fraction of the overall bow wave of modernization spending on conventional weapons.

Secretary Scher, does the Obama administration believe 7 percent of our defense budget for a decade or so is a price worth paying for nuclear deterrence?

Mr. SCHER. As you said, Chairman, the nuclear mission is the number one priority. Affordability is about prioritization. We certainly have sufficient amount of money in the Defense Department budget to ensure that we can fund the number one priority for the Defense Department. So I don't see this as a problem, in any respects.

Having said that, there is no doubt that there is a lot of acquisition coming down the pike, and we must understand the implications of that. I would be remiss if I didn't say that one of the things that makes it clear that we need to have cooperation between the administration and the Congress to ensure we don't return to BCA [Budget Control Act] levels, as is currently looked at, because that will simply exacerbate these problems, but even under that scenario, you fund your number one priority.

Mr. ROGERS. I like the way that sounds.

I would also like to introduce for the record a short paper with quotes from senior Obama administration officials and military leaders about why they believe nuclear deterrence is the number one priority mission for DOD, and why they say it will be funded even at the expense of other capabilities and programs.

Without objection, so ordered.

[The information referred to can be found in the Appendix on page 91.]

Mr. ROGERS. Now I will recognize the gentleman from Tennessee for any questions he may have.

Mr. COOPER. Thank you, Mr. Chairman.

First question to both Admiral Benedict and General Rand has to do with commonality of the D–5 and the ground-based deterrent. What further progress is needed to get to where we need to be on these common components that could be used by both the Navy and the Air Force? Is there consensus on this between the Navy and the Air Force?

General RAND. Sir, there is. Secretary Kendall directed the Air Force and the Navy to work with Draper and to continue to exhaust all avenues to make sure we can find every area that there can be commonality. We are committed to doing that, and I know of no roadblocks that are interfering with the progress we are making.

Admiral BENEDICT. Sir, as I stated in my opening statement, we had a series of teams, joint teams this summer, Navy, Air Force, that identified numerous opportunities. The general pointed out one, which is the guidance sub system. There are many others. We continue to explore those opportunities.

I will tell you that Major General Scott Jansson, who is the PEO [program executive officer] for GBSD, he and I have a VTC [video teleconference] tomorrow. We will approve that final report and submit that up the leadership chain to include Admiral Haney on that chain. And as the general said, we will continue to press to

find ways to ensure that those opportunities are properly executed in the upcoming contracts.

Mr. COOPER. Admiral Benedict, you called in your testimony for proactive leadership on this question, so I hope we will continue to see that. And I hope if there is any wrinkle or blip here, that you promptly notify the subcommittee, because we are very interested in this commonality issue.

Admiral BENEDICT. Yes, sir.

Mr. COOPER. Another question for both General Rand and Admiral Benedict. It is my understanding that the Air Force, unlike the Navy, is giving up on the Personal Reliability Program [PRP] and substituting instead the sort of right-to-arms standard, which would enable more service men to be able to guard nuclear weapons, but I have always been a fan of the Personal Reliability Program, and relaxing a standard doesn't sound like the best way to make sure our nuclear weapons are safe, secure, and reliable. So can you explain why the Air Force is relaxing the standard?

General RAND. Yes, sir. I would humbly submit we are not relaxing the standard. Out of one of the independent reviews, the Welsh-Harvey review, the recommendation is that the arming use of force and the PRP, with a few tweaks to the arming use of force, could be identical to a PRP. And we have actually taken the arming use of force, added two criteria to it that puts it on par with PRP, and now we have administratively lessened the load on, for our security forces, and only for our security forces. Everyone else that still is involved in the nuclear enterprise is on PRP.

So the arming use of force and the PRP, the medical requirements, the physical fitness, the emotional requirements are identical.

Mr. COOPER. You have used the word "identical" twice, but we have to change it to keep it identical. There is a certain irony there. There were almost 1,000 incidents in the last several decades of problems with securing nuclear weapons by the U.S. Air Force. So I hope and pray that this new standard will be as you suggest, and just as tough.

General RAND. It is, sir.

Mr. COOPER. Oh. And we have your word on that?

General RAND. You have my word on that. And if it is not, and we find that it is not, we will revert back to the PRP, but we have run very judicious and cautious testing to make sure we did not rush to failure on that, and we are implementing it as we speak across the nuclear wings, again, only for our security forces, and the arming use of force has the same requirements for them as does PRP.

Mr. COOPER. Well, time will tell.

General RAND. Yes, sir.

Mr. COOPER. Admiral Benedict, we understand that the success of some Department of Navy programs hinge on the Department's ability to develop strong partnerships and collaborate with State and local government agencies, such as local law enforcement and emergency response agencies. Acknowledging this need to collaborate, we also recognize that it must be challenging for the Navy to ensure protection of data that is shared with State and local agen-

cies in an age when information flows so freely through email and other media platforms.

Would you please describe some of the challenges that your program faces as it seeks to balance the need to partner and collaborate with State and local agencies with the need to protect sensitive information?

Admiral BENEDICT. Yes, sir. Thank you. We have seen this as more of a challenge here of recent. While we believe in absolute transparency with the State and local governments to ensure that they fully understand how we are protecting and safeguarding the operations within our naval bases, we also fully appreciate our responsibility and accountability to protect sensitive information.

And, so, as we have been honoring FOIA [Freedom of Information Act] requests and appropriately adjudicating those requests, what we have found is that some organizations, some individuals have identified an easier path through the State and local governments in which we have been sharing some of that information. So we have been working with Chairman Rogers and with your staff identifying some of these issues that we now face, and we have been getting great support in attempting to ensure that, again, very classified, sensitive information is clearly transmitted to those who should have it, but is also protected from other inappropriate or inadvertent uses. So we will continue to work with your staffs, and I think there is an opportunity here for us to address this very sensitive issue.

Mr. COOPER. Well, thank you. It is very important that we protect such sensitive information.

Finally, General Rand, you had mentioned in your testimony that the Air Force missile program has been reinvigorated but still more needs to be done. Are you confident that morale of the missileers can be restored, and do you need additional resources to do that? And I hope that your relaxation of the Personal Responsibility Program is not part of your morale boost.

General RAND. No, sir. I actually, if I may, just add and clarify a point. Currently, we make up 12 percent of all the security forces in the United States Air Force are assigned to Air Force Global Strike, and that is a fairly large percentage, and of that right now 75 percent of our security forces are first term airmen on their first assignment. I find that a little unsettling, and I know now that we are using the arming use of force, which has the same standards of PRP, that all security forces now will be eligible for missile duty. That is a good news story in the sense that I will have a better, experienced force out there in my missile fields.

As far as morale, that was not one of the areas that we considered at all to improve morale, was PRP. This was more of an efficiency and what we feel is a security and surety measure. There are multiple things we are doing with the culture. It is not a light switch I can turn on and off, but I am very impressed by the caliber of our young men and women who serve in the missile fields. Certainly, we are doing numerous things for our missile crew members to ensure that they have a clear understanding of their role, what they play, and the areas that we can improve to help career develop them. And I think we have got numerous initiatives that are underway, but I can't take a lieutenant and turn him or her

into a lieutenant colonel or a colonel overnight, so this will take time for these to take root.

Mr. COOPER. Thank you, Mr. Chairman. I have no more questions.

Mr. ROGERS. The Chair now recognizes the gentleman from Colorado, Mr. Coffman, for 5 minutes.

Mr. COFFMAN. Thank you, Mr. Chairman.

General Rand, should we review the missile warning and NC3 capabilities as legs of the triad—should we view? Have we been paying enough attention to missile warning and its enablers? Are you comfortable with the plan to evolve these capabilities and that the Department will stick with it to ensure a survivable capability?

General RAND. Sir, I don't want to give you an incomplete answer. If I may, I will take that for the record. I believe that NC3 in itself is addressing numerous shortfalls in the communication piece of—on potentially our Nation's worst day, and there are many areas that this covers. Having it now declared a weapons system, while I don't own all those parts of the weapons system, having a single bellybutton that is accountable and reportable and has the authority to work with my fellow major command commanders as well as the combatant commanders as well as the Joint Staff, and the Office of the Secretary of Defense, I think will pay great dividends, but as particular to your missile warning, sir, I need to research that and get back to you and the members.

Mr. COFFMAN. You might have to get back on this one too. What key investments do we need to make to ensure our missile warning system is robust? What major investments are you planning for fiscal year 2017 and over the next 5 years?

General RAND. Sir, I will get back to you with that.

[The information referred to can be found in the Appendix on page 95.]

Mr. COFFMAN. Okay. Thank you.

General RAND. I am sorry I don't have that information.

Mr. COFFMAN. I understand. I yield back.

Mr. ROGERS. Thank you. The Chair now recognizes Mr. Ashford for 5 minutes.

Mr. ASHFORD. I don't have any questions. Thank you.

Mr. ROGERS. Then Mr. Larsen is recognized for 5 minutes.

Mr. LARSEN. Thank you, Mr. Chairman.

Mr. Scher, are you going to be here in 2040?

Mr. SCHER. I don't plan on it.

Mr. LARSEN. I don't plan on it either. Are you going to be here next year?

Mr. SCHER. I serve at the pleasure of this President.

Mr. LARSEN. So how can you say with confidence beyond January 20 of next year that this modernization budget will stay whole?

Mr. SCHER. I can tell you what the 5-year plan that was approved by the Department and then submitted to the President says. So, that is the plan as of now. Certainly any plan can change and someone else can, but I know that we have the ability to fund within a balanced defense program, given the top line that we hope to be able to get from the Congress and the administration through. So I feel comfortable about those figures as for—but certainly, as you note, Congressman, things can change.

Mr. LARSEN. Yeah. And one thing that seems to have changed is—last year, I asked Admiral Haney this question, so it was in a response, a letter he had sent to the committee saying that our planned recapitalization activities will require close to 10 percent of the DOD budget for a period of time. I think he then testified to 7, although that was based on some questions we asked him as opposed to another analysis. So you heard the chairman talk about 7 percent.

Is it 7? Is it 10? Is it something in between? Is it a multiple of?

Mr. SCHER. The difficulty in giving you a percentage of a budget is that I don't feel confident that I know what that budget top line is, so giving you a percentage of that is difficult.

What I do feel confident about is that we have—what our program is, and—you know, so, again, I feel confident that what we put up is 3.3 percent of the budget for fiscal year 2017, which is $19 billion. In the fiscal year 2017 to 2021 plan, it is $31 billion for DOD modernization. So I feel comfortable and confident about those numbers as they stand, but in terms of percentage and where it is going, that would require me to be prescient on a number of different issues that I think are difficult to do.

Having said that, under most assumptions, I don't see—none of the projections seem to have it above that 7 percent kind of frame, but, again, I hesitate to even mention it, in part, because I have no doubt that when neither you or I are here in 2040, that someone will raise this issue of not knowing the top lines and having the wrong percentages.

Mr. LARSEN. If I am here in 2040, the country has other problems, that is for sure.

So—but this is something I am just asking everyone about because of the challenges that we would face for the entire nuclear enterprise, and then, you know, Admiral Benedict's testimony doesn't address the issue, but he recognizes the issue that so long as everything works out, then everything will work out, but our history with MDAPs [major defense acquisition programs] is that they usually don't, that we usually end up over budget and things take too long and we end up dealing with the Department of Defense that finds ways to add things onto the platforms we have approved, because why not do it now when we have the money, and, well, it turns out we don't do it now because we usually don't have the money.

So I am going to just continue to ask these questions of the Department on nuclear modernization, because I will go out on a limb and I will say it won't be 7 percent, it will be something much higher, because that is what history says will happen in the Department.

Thanks. Appreciate it. Yield back.

Mr. ROGERS. I thank the gentleman. The Chair now recognizes the gentleman from Alabama, Mr. Brooks, for 5 minutes.

Mr. BROOKS. Thank you, Mr. Chairman. And congratulations on your rather close victory last night.

Mr. ROGERS. Thank you.

Mr. BROOKS. 50 points.

I am going to give you the questions first, give you some time to think about it, go through some economic background, then repeat the questions and ask you to answer them.

The question is going to be, what can we in Congress do to get more bang for the buck out of our defense dollars, efficiency measures, things of that nature, or in the alternative, what mission scopes should we reduce? And I ask you to focus on your particular areas of expertise on the one hand, or if you have got broader things related to the Pentagon and what DOD does, that would be wonderful.

And I ask that question in this context. You all may remember Admiral Mike Mullen, former Chairman of the Joint Chiefs of Staff. In 2010 and 2011, he sat at that same spot where you guys are now and he told us that America's greatest national security threat was our deficit and debt. And I think you have seen with sequestration and whatnot, how he was very prophetic in his remarks.

Unfortunately, over the past couple of months, it appears that our deficit and debt situation has taken a rather dramatic turn for the worse. Since I was elected in 2010, every year we have decreased our deficits. Now the CBO is warning us that our deficit for this year is apt to increase by about $105 billion to $544 billion. Worse yet, long term, the CBO is warning us that our debt service costs are going to go up roughly $600 billion over the next decade. That is per year. $600 billion, as you know, is about what we spend on national security. That money is going to have to come from some place. Additionally, the CBO is warning us that a decade from now, we are going to be looking at a $1 trillion deficit in perpetuity until such time as we, essentially, go bankrupt or insolvent as a nation with the rather severe adverse consequences that would bring to us.

So we are going to have to make some hard decisions. That being the case, what efficiency measures do you think we ought to be implementing, with your insight and expertise, or in the alternative, what mission scopes should we start discarding or reducing in order to be able to meet the kind of financial pressures America is going to face in the future?

Don't everybody speak at once.

Mr. SCHER. Congressman, first, I agree. And I think you have likely heard or seen that Secretary Carter agrees that we have to understand a couple of things: one, the importance of an overall budget, and that the Defense Department has a responsibility to be as careful and responsible with the funds that we have, because we have to prove that we are using effectively every dollar that is given to us by the Congress and by the American people; and that we must ensure that the other parts of the United States have strong budgets and support, because we are only as strong as the people that we can recruit in terms of the education system, in terms of foreign diplomacy and aid.

So, I think there is a true understanding within the leadership of the Department of Defense that we will never—you know, we can't have a budget that is out of proportion and misaligned with the rest of the importance of the rest of the United States Government.

Having said that, you know, we believe we use the money as efficiently as possible. And we go through a process every year of revalidating the amounts of money and how we spend it to ensure that we can deal with the threats that we see in the security environment to continue to serve our interests, and propagate those interests, and secure our national security and friends and allies.

We believe we have put together the most efficient way of doing that, the most effective way of doing that within the context, in this case, of the budget agreement that was agreed to by the Congress and the President. So our role is to ensure that it is strategically guided in terms of dealing with the largest threats to the United States, and that we do that as efficiently as possible.

There are lots of discussions about which mission and where, but I think the Secretary has been very clear how he sees this being guided and that the focus is on ensuring that we can deal with the five threats that he has articulated: dealing with a resurgent Russia, dealing with a rising China——

Mr. BROOKS. Excuse me. Secretary Scher, I have only got 30 something seconds left.

Mr. SCHER. Right.

Mr. BROOKS. Do you have any specific recommendations for this Congress, actions we should take to make our security costs more efficient or to reduce mission scope?

Mr. SCHER. I think we have—we have done our proposal on the budget is what we think is the most efficient way of doing it. The main thing is to continue to be able to have secured funding and predictable funding in the outyears.

Mr. BROOKS. Thank you.

And I see that my time has expired. Thank you, Mr. Chairman.

Mr. ROGERS. I thank the gentleman. I would also like to recognize the gentleman from California, Mr. Garamendi, for 5 minutes.

Mr. GARAMENDI. Thank you, Mr. Chairman.

Some of this has been reviewed, but I would like to go back and try to dig a little deeper on it, and this goes to you, Mr. Scher. Most of the estimates that we have seen with regard to the entire nuclear programs really go out 5 years, but yet, the bow wave, an interesting word to be used, seems to occur beyond 5 years.

Do you have estimates of the cost beyond 5 years, and if so, can you share those specific estimates with us, system by system, and bomb by bomb?

Mr. SCHER. We have some figures and some charts that I know we have shared with you. I suspect they lack the level of precision that you are requesting.

Mr. GARAMENDI. Totally. Not partial, but totally.

Mr. SCHER. We do have very clear projections for 5 years. As we go out, honestly, those projections, even in the greatest of granularity, become harder and harder to make sure that we are confident about those numbers, based, in large part, upon some of the things that Mr. Larsen has mentioned.

So we have some estimates in the acquisition side, that I don't know if we have the level of granularity you are going to look for, but we will certainly be happy to go—I will be happy to go back, and I don't know if Dr. Hopkins has additional information, to go back and see what level of granularity we can provide.

Mr. GARAMENDI. Are there—at some point within the next 5 years, the granularity will become more obvious, and perhaps to the point where the granules are sufficient to trip over.

Do you have milestones in mind at which point decisions would be made as to whether it is wise to continue any one of the programs?

Mr. SCHER. In terms of the commitment to the program, we remain committed to all of the modernization of the program. And I believe it is critical to ensure that we modernize each leg of the triad, as we have talked about. We understand that as we get closer, we will continue to get more granularity for it, but we—at no point in time is the policy of this administration to stop any of the modernization programs. They are affordable if they are prioritized.

Mr. GARAMENDI. That is the most remarkable statement I have ever heard.

Well, with regard to priorities, then, this committee and its subcommittees have gone through hearing after hearing from other branches of the Department, and their priorities cannot be met, given the current budgets of the Department. And it would seem to me that, therefore, the priorities would be for us to shift money from everything else to meet their priorities, and what you say is absolutely cannot change, that is, these priorities, puts us in an interesting circumstance, wouldn't you say?

Mr. SCHER. The Secretary and the President determine what the priorities for the Department are. The Secretary, I think, has been pretty clear that he views the nuclear enterprise as a priority, and hence, he makes the final——

Mr. GARAMENDI. We are going round and round, and there is not much value in that. So, if I might just kind of change the course here.

Down to specifics. General Rand, your new ground-based strategic deterrent, do you know what it is going to cost 5 years out?

General RAND. Five years after the FYDP? Is that the question, sir?

Mr. GARAMENDI. That is correct.

General RAND. I don't have the granularity that you are requesting at this time.

Mr. GARAMENDI. Then can you tell me why the existing missiles cannot be used in 20 years——

General RAND. I certainly may.

Mr. GARAMENDI [continuing]. Cannot be rebuilt, cannot be refurbished?

General RAND. Sure. I previously stated that I believe that the system will have a difficult time surviving in the active A2/AD [anti-access/area denial] environment that we will be dealing with in the 2030-and-beyond time period.

Mr. GARAMENDI. So that is the warhead itself, or the missile itself, will not be able to achieve its destination?

General RAND. Yes, sir. That is my contention.

Mr. GARAMENDI. And the new missile could?

General RAND. Yes, sir. That is our contention.

Mr. GARAMENDI. It would seem to me, Mr. Chairman, that we may want to find out how that could be achieved.

General RAND. And I do believe we will have a closed session to talk to you in more detail.

Mr. GARAMENDI. Thank you very much.

Mr. ROGERS. Yeah. I look forward to that in the closed session as well. I now go to the gentleman from Louisiana, Mr. Fleming, for 5 minutes.

Dr. FLEMING. Thank you, Mr. Chairman.

And, General Rand, as commander of Global Strike Command, I know you have a deep understanding of the significance of nuclear weapons, and have a vital understanding of the deterrent effect. And I just—parenthetically, we are so blessed to have you as our first four-star in command at Global Strike, and I hope you find that accommodations in Shreveport and Bossier City are satisfactory.

But anyway, aside from all that, let's talk about something that maybe is less obvious but can be even more important, and that is the culture of deterrence. I am concerned that, through the day, we have an entire generation of young airmen performing nuclear operations that have little appreciation for the special significance that these weapons have. The threat of nuclear aggression could still persist beyond the Cold War, and is indeed different, and arguably more diffuse and unpredictable. I think most of that is more important than ever that we are taking steps to impart the special significance and understanding in today's generation of airmen.

So my question is this: What efforts are underway right now in the Air Force to strengthen deterrence education, research for airmen performing that nuclear mission?

General RAND. Thank you, sir. That is a great question, and I am glad I get to comment.

As my good friend, Terry Benedict, mentioned, commonality, we talk weapons systems. One of the things we need to do is find commonality between the services. We are doing that. We have an exchange program with some of our 13N young captains and majors are in exchange with the Navy right now. This past summer we start our Schools of Advanced Nuclear Deterrent Studies, where we have eight majors, O–4 field rate officers, that are at Albuquerque, New Mexico, for a 12-month study. That program will continue to grow, where we will be bringing 12 to 15, we will bring different career fields other than nuclear expertise, we will also be bringing in different services, and we will be bringing in, on the fringes, some partner nations that will attend.

One of the areas that we are doing is looking at career broadening for our missile and bomber pilots, presently looking at trying to expand assignment opportunities for our missile crews where they can go and serve in places in Europe where we have the dual-capable aircraft missions, and we can get them in their plan.

So, there are multiple programs, and then the last one, with folks that have helped us build a series of strategic deterrent courses that we have called nuclear deterrence 100 up to 400 series, which the 400 is for general officers and senior executive service personnel, all the way down to 100, which is for our sessions people and everything in between.

Sir, I could go on for the rest of this session, if you would like, but I think that gives you a hint.

Dr. FLEMING. Please don't, because I have got less than 2 minutes, but I thank you for that. It sounds like it is very robust, and I appreciate that there is a lot behind that. You know, we put language in the NDAA [National Defense Authorization Act] to look at that, and I think we are expecting a report. I assume that this is sort of a preview of that report?

General RAND. Sir, and I will send you personally some of the initiatives, all the initiatives that we have.

Dr. FLEMING. Awesome. Okay. Very good.

Well, in the time I have left, I am also concerned about the nuclear command and control, N3, and I am a little—to be honest with you, it is a little ambiguous as to is this spread over four commands as we are understanding, or is this really controlled in a singular sort of silo? Can you explain that for me?

General RAND. Certainly. The nuclear command and control communications is a system of systems. And if I could, there are approximately 107 systems that would make up what we would call NC3. The Air Force is responsible for 63 of those 107 different systems. And we have found that the best way to manage this is to put it in a singular major command, and that is now Air Force Global Strike, but I have to be very collaborative with my fellow major commanders.

For example, some of these systems reside in Space Command, the FAB–T [Family of Advanced Beyond Line-of-Sight Terminals], for example, the NAOC [National Airborne Operations Center]–E4B resides presently in Air Combat Command, but the issue of how do you have responsibility without authority, a lot of the authority will come through the budget, and that I will have budgetary oversight of how dollars are spent in accord with these programs.

And we are getting significant top cover and support from the OSD, and Mr. Halverson specifically in CIO [Chief Information Office]. And so I think, sir, that potentially, if I may, late to need, but we are actually pedaling very, very hard to make sure that we address the shortfalls that currently exist in many of our NC3 overall weapons system.

Dr. FLEMING. Right. Okay. Thank you.

My time is up. I yield.

Mr. ROGERS. I thank the gentleman. The Chair now recognizes the gentleman from Montana, Mr. Zinke.

Mr. ZINKE. Thank you, Mr. Chairman. And I thank you for allowing me to attend the hearing today.

I guess where I want to turn to is the helicopters. And the reason why I—out in Montana, I tour the facilities, and the airmen came up to me knowing I was a former SEAL [Sea, Air, Land teams], and they had some concerns about the UH–1s, the Hueys. And looking at the inventory of what we have out there and doing a little research where our staff tried to find some alternatives that were cost effective, we looked at Navy helicopters, we looked at everything, and it seems to me that we do need to replace the helicopters, because they are at a concern with alert. Admiral Haney also suggests that.

And I guess my question to you is, in previous budgets, did we look at using sole source acquisition to replace these, and what were the options that were presented before us? Dr. Hopkins.

Dr. HOPKINS. I am not aware of any previous attempts to use sole source arrangements. However, I can say that within the Office of the Secretary of Defense, we have assured the Air Force that they have the authorities they need to do procurement in whatever fashion that is necessary to get the helicopters out in the most expedient manner possible.

Mr. ZINKE. And, General Rand, you are aware, I am sure, of the Secretary of Air Force's letter to Chairman Rogers that expressed they really can't—they failed a couple exercises in there, and there is a concern that they can't fulfill their alert duty with the UH–1s?

General RAND. Sir, there are two requirements that we have, real briefly, and I won't belabor this. We have the convoy escort duty for when we are moving the warhead to and from the launch facility to base, and vice versa. The other requirement that the combatant requirement is to provide an emergency security response team.

With mitigation efforts that we put in place with the UH–1N, we are arming the helicopter right now, we put some refueling capabilities out in the missile alert facilities, we will be able to do the convoy effort, I think, safely and effectively until the replacement for the UH–1N comes on board. We will not meet the emergency security response with the present helicopter.

And, so, there is no seam between myself and Admiral Haney on the need for a replacement helicopter, and there is no seam with the United States Air Force on the need to replace that. And in this current budget, we have $1 billion right now that is allocated to replacing that, and we are finalizing our acquisition strategy as we speak. And I strongly recommend to the Secretary and the chief that we do the most expeditious manner possible to get a replacement out to the missile fields.

Mr. ZINKE. Thank you, General. As a taxpayer and an individual who is in charge of now looking at taxpayers, and I look at present programs out there. As a former SEAL, I notice some contracts out there that I would encourage you to find, not only the most expeditious way, but also a way that is most cost effective. I can't believe that the Black Hawk, given my experience, cannot meet this role. So I would encourage you to look at what is out there, and certainly, on the Black Hawk, if it fills a mission, and we have contracts out there that we can add on top without re-inventing the wheel, I would strongly encourage that. And thank you, Mr. Chairman, I yield my time back.

Mr. ROGERS. The Chair recognizes the gentleman from Arizona, Mr. Franks.

Mr. FRANKS. Well thank you, Mr. Chairman. Thank all of you for being here, and with great deference to the civilians here, let me express, as I always do, a special appreciation to those who wear the uniform. General Rand, you know you and I have been friends for a long time, I am grateful for men like you that dedicate their lives to the cause of freedom, and know that my children, as I have said to you many times in private, have a better chance of walking

in the light of freedom because people like you that do what you do. I am grateful to all of you.

General RAND. Thank you, sir.

Mr. FRANKS. With that, Mr. Scher, Dr. Hopkins, and General Rand, why has the President, in your mind—I will start with you, Dr. Scher—Mr. Scher, why has the President consistently supported the ICBM leg of our triad? And why does that continue to be relevant from your perspective?

Mr. SCHER. Congressman, I think, first of all, the President's determination is from a broad perspective that the triad is important, it brings flexibility across a range, it brings hedges within and amongst all the different elements, so that, in and of itself, is an important piece.

The ICBM leg, as certainly you know, sir, is the most responsive of the legs and ensures that no adversary can believe that they have a strike that immediately eliminates all of our capabilities to respond. So from a policy perspective, those are the key elements of why the ICBM force is so important.

Mr. FRANKS. Well, as you might imagine, I couldn't agree with you more.

Dr. HOPKINS. Mr. Franks, I would just add the attribute of survivability; ICBM force does provide an enduring capability to respond. And it really does discourage attacks on the United States.

Mr. FRANKS. General Rand.

General RAND. Sir, they covered it—we have, as you know, 24/7 alert right now of great young men and women that are in our missile silos performing, I think, a tremendous duty for our country.

Mr. FRANKS. General Rand, I may sort of elaborate on the question. You know, Mr. Scher mentioned the word "responsive," and certainly, I think that is correct. But sometimes we hear the characterizations that our nuclear forces, particularly our ICBMs, are on hair trigger alert, this is at least the phrase that I hear a lot.

Many are suggesting that we, quote, "take our ICBMs off alert." Would you agree with that? And why would you think that might be a good or bad idea?

General RAND. Sir, I don't agree with that. My personal opinion is that our enemies sleep with one eye open at night because of the men and women in the missile fields.

Mr. FRANKS. Well, I just wanted to get that on record. Obviously, I agree with that.

Admiral Benedict, what is the minimum number of *Ohio*-class replacement submarines that are required to fulfill STRATCOM's requirement for sea-based deterrence? The Navy, and STRATCOM, and DOD have been very clear on this. And I wonder if you would explain why less than 12 doesn't meet the requirement?

Admiral BENEDICT. Sir, the number is 12, you stated that correctly. That is the program of record for the *Ohio* replacement program. And essentially throughout the entire life cycle of that platform, we have done the analysis. We need 12 to make 10, where 10 is the requirement to support Admiral Haney's mission statement at STRATCOM.

Mr. FRANKS. Well, let me ask you, and I don't know if we will get through the whole thing, so General Rand, I will start with you

again. If there was any one thing that you believe that right now we should have particular focus on in terms of our strategic capability, would there be anything that you would emphasize?

General RAND. Sir, I think that the balance of where we are focusing right now for me is with our bomber recapitalization modernization along with our modernization/the development of the GBSD, that those two fit like a glove, and it is important that we have parallel efforts on both those.

Mr. FRANKS. Mr. Chairman, I am going to do something really rare and give back about 30, 40 seconds here, and thank all of you for your gallant commitment to human freedom.

Mr. ROGERS. I thank the gentleman. The Chair now recognizes Chairman Forbes from Virginia for 5 minutes.

Mr. FORBES. Mr. Chairman, thank you. Gentlemen, with so much falling on the line of Mr. Franks questions and with so much focus on the next generation of command and control infrastructure launch platforms and next generation missiles, how confident are we that our current fleet of the *Ohio*-class submarines and their support networks will be able to maintain our tactical advantage over the rest of the world until the *Ohio* replacement comes online?

Admiral BENEDICT. Sir, I would say we are very comfortable. Although, I think you are well aware, sir, from your position as chairman, that those platform are aging. We are going to take the *Ohio*-class submarine to a life that we have never, within the Navy, experienced before. I know that within Naval Sea Systems commands, Naval Reactors, and the entire shipboard community, we are watching those platforms very, very carefully.

Maintenance is a challenging experience within those platforms, it is growing. But I think that we have the right emphasis from the top down, from the CNO [Chief of Naval Operations], from Mr. Stackley, to ensure that we are appropriately funded to address that, get those through their 42-year life history, or planned experience, and then bring the *Ohio* replacement on to the program of record to ensure that we can meet the 12 submarine platforms necessary to support Admiral Haney.

Mr. FORBES. Is there anything Congress can or should do to strengthen our current nuclear triad to ensure that we are ready to face any global challenges in the immediate future and are ready in the event of any delay in future replacement programs?

Admiral BENEDICT. Sir, I think that just recently, both Mr. Stackley, as well as the CNO, have testified, what they believe they need in order to execute the *Ohio* replacement program as cost efficiently as possible. Things such as economic order quantity, advance construction authorization, incremental funding, class procurement, things like that. They just recently have been up on the Hill.

Mr. FORBES. Are those things contained in the sea-based deterrent fund?

Admiral BENEDICT. I believe those authorizations are, sir. We need those types of authorizations and relief so that we can deliver, within the cost budgets that we have agreed to, in order to hold those platforms to an economic goal-order quantity.

General RAND. Sir, I think the key for the Air Force is that we get appropriated and approval authorization for the current—the

PB [President's budget], the budget, in fiscal year 2017 and through the FYDP, and then, I think, we need reprieve from the Budget Control Act.

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

Mr. ROGERS. I thank the gentleman. The Chair now recognizes the gentleman from Oklahoma, Mr. Bridenstine, for 5 minutes.

Mr. BRIDENSTINE. Thank you, Mr. Chairman. Secretary Scher, as a policy matter, what should an adversary know if it thinks about attacking our missile warning or nuclear command and control satellites or ground links?

Mr. SCHER. So certainly, the pieces of the nuclear enterprise that you mentioned are critical parts to our ability to be able to assess and respond to any adversary. That—however, I would argue those attacks are as serious as any attack on any U.S. facility, any U.S. service member, any part of the United States. So equally, the key piece of deterrence is ensuring that the adversary understands that the risks that come from taking that action will far outweigh any advantage they believe they can accrue by taking such action. It doesn't matter what it is, but the NC3 and those pieces are critically important.

Mr. BRIDENSTINE. Is the adversary crossing a red line by attacking systems designed to maintain situational awareness during a nuclear conflict?

Mr. SCHER. The adversary should not believe that by attacking anything. I am, Congressman, uncomfortable with constraining options for red lines and others, but attacking those facilities are critically sensitive, and it is understood, and needs to be understood by the adversaries, that that is something that will not be allowed to remain.

Mr. BRIDENSTINE. Do we have a declaratory policy on this?

Mr. SCHER. We do not have a specific declaratory policy on that, but I think the overall declaratory policy contains references—that looks at the whole range of our nuclear enterprise.

Mr. BRIDENSTINE. I just received an out-brief from the latest Schriever war game. I was interested if you have received that brief, or maybe if you attended the war game itself?

Mr. SCHER. I did not attend and haven't actually seen the out-brief of that one, sir.

Mr. BRIDENSTINE. So the Deputy Secretary of Defense attended, and I would highly recommend you do as well.

Mr. SCHER. Will do so.

Mr. BRIDENSTINE. With that, Mr. Chairman, I yield back.

Mr. ROGERS. I thank the gentleman. I would like to ask one final question before we go to the classified section. Secretary Scher, the New START [Strategic Arms Reduction] Treaty doesn't expire until 2021. At that point there is an option for 5-year extension if Russia and the U.S. agree.

Since we are 5 years away from that expiration, is there any reason to trigger that extension now, especially since Russia is cheating on the INF [Intermediate-Range Nuclear Forces], the Open Skies Treaty, and has never been in compliance with the chemical weapons or biological weapons conventions?

Mr. SCHER. I think there is—first of all, I will note that Russia, at this point, continues to abide by the New START Treaty. The

reason we went into the New START Treaty with the Russians is that we saw it in our interest to do so. I would argue that that treaty is still working for our interests in terms of constraining the number of deployable weapons from Russia. Whether or not it is in our interest to extend it I think is a decision that is a policy decision that people will be considering, but I do think it should be looked at in isolation of whether or not it still serves our interest, since the Russians are still adhering to that treaty.

Mr. ROGERS. All right, that is debatable, but I'll let it go. I appreciate all the witnesses.

We are now going to recess for 5 minutes while we move into classified session.

[Whereupon, at 3:14 p.m., the subcommittee proceeded in closed session.]

A P P E N D I X

March 2, 2016

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 2, 2016

Opening Remarks – As Prepared for Delivery
The Honorable Mike Rogers
Chairman, Subcommittee on Strategic Forces
House Armed Services Committee

Hearing on the "Fiscal Year 2017 Budget Request for Department of Defense Nuclear Forces"

March 2, 2016

Good afternoon. The subcommittee will come to order.

Welcome to our hearing on the President's Fiscal Year 2017 budget request for the nation's nuclear forces.

I want to thank our witnesses for being here today and for serving our country. We know how much work goes into preparing for these hearings and we thank you. Our witnesses are:

- **The Honorable Robert Scher**
  - Assistant Secretary of Defense for Strategy, Plans, and Capabilities
- **Dr. Arthur Hopkins**
  - Who is performing the duties of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs
- **General Robin Rand**
  - Commander
  - Air Force Global Strike Command
- **Vice Admiral Terry Benedict**
  - Director
  - Navy Strategic Systems Programs

This is our third hearing on the budget request for FY17.

At our first two hearings, we heard from your partners over at the Department of Energy and from senior leaders at STRATCOM and OSD.

As my colleague and friend from Tennessee, Ranking Member Jim Cooper, said at both of those hearings—we have a strong, bipartisan agreement that nuclear deterrence is the nation's number 1 priority defense mission and we must recapitalize our nuclear forces.

From the Secretary of Defense, to the service secretaries and chiefs, to the key leaders here in Congress—we're all in resounding agreement.

Together, we know that not only is the coming nuclear modernization affordable—it is the highest priority.

And because it is our top priority it will be robustly supported and funded—even if it comes at the expense of other capabilities.

This is a hard-won bipartisan consensus on defense priorities in a tremendously difficult budget environment.

At the heart of this consensus is a collective understanding that these programs are not optional—that they are instead the foundation of U.S. security and international stability.

And now we need to get on with the nitty-gritty of actually carrying out those programs.

The Air Force and the Navy must request the funding necessary and manage the programs well.

While Congress must do its part to authorize, appropriate, and oversee them.

We will scrub your requests hard—and press you equally hard to ensure you are managing them for efficiency and success.

Together, I am confident we will ensure the U.S. nuclear deterrent remains what Secretary Carter calls: "the bedrock of our security [and] the foundation for everything we do."

Thank you again to our witnesses—I look forward to the discussion.

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Senate Armed Services Committee

STATEMENT OF

ROBERT SCHER

ASSISTANT SECRETARY OF DEFENSE

FOR STRATEGY, PLANS, AND CAPABILITIES

BEFORE THE HOUSE

ARMED SERVICES

SUBCOMMITTEE ON STRATEGIC FORCES

March 2, 2016

Chairman Rogers, Ranking Member Cooper, and distinguished Members of the Subcommittee, thank you for the opportunity to testify on U.S. nuclear policy and strategy, and to frame the President's Fiscal Year (FY) 2017 budget request within the context of today's dynamic security environment. Your support for the nuclear sustainment and modernization plan it funds is essential to ensuring the effectiveness of our nuclear deterrent forces.

Security environment

Last month, Secretary Carter identified five evolving security challenges that have driven the focus of the Defense Department's planning and budgeting this year. Each has a nuclear dimension that our policy and strategy must address.

Two of these challenges reflect a return to great power competition, in regions where we face nuclear-armed potential adversaries that can pose an existential threat to the United States and our allies and partners. Russia has undertaken aggressive actions in Crimea and elsewhere in Ukraine, and adopted a pattern of reckless nuclear posturing and coercive threats. Russia remains in violation of the Intermediate-Range Nuclear Forces (INF) Treaty and remains unreceptive to the President's offer to negotiate further reductions in strategic nuclear weapons below the limits of the New START Treaty.

Russia's violation of the INF Treaty is serious in its own right, but should not be viewed in isolation from its overall aggressive behavior. Therefore, the Administration has determined that our responses should focus on responding to that full range of aggressive behavior. We must take a comprehensive approach to Russia's actions, integrating responses across all instruments of national power. As Secretary Carter testified last week, "the United States is taking a strong and balanced strategic approach in response to Russia's aggression: strengthening both our allies and ourselves, including through investments in this budget, while also giving Russia the opportunity, if it chooses, to rejoin the international community and work with us where our interests align. On the military side, we are developing and implementing a strategy to address Russian military actions that includes modifying and expanding air defense systems to deny Russia offensive capabilities; placing an increased emphasis on working with allies and partners to improve our collective capability to counter complex cruise missile threats; working with

other departments and agencies to encourage and facilitate allied acquisition of advanced capabilities by those most concerned with Russian behavior; and investing in the technologies that are most relevant to Russia's provocations. We are enhancing our posture in Europe by increasing the amount of prepositioned equipment sets in Europe as well as the number of rotational U.S. forces, including Reserve forces, through increased funding for our European Reassurance Initiative.

China is introducing qualitative advances into its nuclear and conventional military capabilities as it continues its rise, while we continue to implement our Rebalance to the Asia-Pacific with the goal of maintaining regional stability. Earlier this year North Korea conducted its fourth nuclear test, followed by a ballistic missile launch that placed a satellite into orbit. In response to the evolving North Korean threat, the United States and the Republic of Korea have made an alliance decision to begin formal consultations regarding improvements to the alliance missile defense posture, specifically the viability of a Terminal High Altitude Area Defense (THAAD) system in the Republic of Korea.

As we work to counter Iran's malign influence against our allies and partners in the Middle East, we will remain vigilant for any reversal of course by Iran on its commitments under the Joint Comprehensive Plan of Action (JCPOA). Finally, denying terrorists access to nuclear weapons and weapon-usable materials is an absolute imperative in the ongoing fight to defeat terrorist organizations.

Effective deterrence

While the Administration's ultimate goal is a world without nuclear weapons, the President has been consistent and clear in his commitment to maintain a safe, secure, and effective nuclear arsenal for as long as nuclear weapons exist. DoD and the National Nuclear Security Administration (NNSA) work closely together to maintain the safety and security of our nuclear forces at the lowest possible number of nuclear weapons consistent with retaining a full set of options to address current and potential threats. I will focus today on what we in the DoD are doing to ensure the effectiveness of our nuclear deterrent.

Effective deterrence means convincing any potential adversary that attacking the United States or its allies would bring risk that far outweighs any expected benefits of aggression. This requires

that our nuclear capabilities and posture provide the ability to implement U.S. deterrence strategy, preserve the strategy's credibility, and reinforce strategic stability. Maintaining the ability to achieve the President's objectives if deterrence fails strengthens the credibility of our strategy.

Regional deterrence requires a balanced approach to escalation risk that deters escalation, but also prepares for the possibility that deterrence might fail. We accept and convey the reality that no one can count on controlling escalation in a crisis or conflict. Russia's purported doctrine of nuclear escalation to deescalate a conventional conflict amounts to a reckless gamble for which the odds are incalculable and the outcome could prove catastrophic. Any resort to nuclear weapons would be the ultimate form of escalation. However, we must be prepared if Russia creates a conflict and drives it across the nuclear threshold; we do not simply assume that escalation cannot be limited once the nuclear threshold has been crossed. We are tasked with providing the President credible options for responding to nuclear threats and nuclear aggression, including responding to limited nuclear use. Both aspects of this balanced approach are mutually reinforcing. Possessing a range of options for responding to limited use makes credible our message that escalating to deescalate is dangerous and will ultimately be unsuccessful.

Sustainment and modernization program

Our approach to meeting the range of challenges we now face or might face in the future is to maintain a deterrent that is robust and stable, rather than one that is necessarily reactive to every action of potential adversaries. This remains best served by sustaining the nuclear Triad and Dual-Capable Aircraft (DCA) with a diverse range of nuclear explosive yields and delivery modes. The Triad and DCA provide the credibility, flexibility, and survivability to meet and adapt to the challenges of a dynamic 21st century security environment, without the need to mirror every potential adversary, system-for-system and yield-for-yield. Thus, the Administration's plan focuses on sustaining and modernizing current platforms, delivery systems, and warheads to preserve existing military capabilities in the face of evolving threats, rather than developing new nuclear warheads with new military capabilities. In addition to positioning us to address threats as they emerge, this approach bolsters strategic stability by decreasing incentives for, and the likelihood of, a future arms race.

This approach to nuclear sustainment and modernization is consistent with the Administration's nonproliferation and disarmament objectives. The FY 2017 budget request and Future Years Defense Program (FYDP) support a program that sustains a safe, secure, and effective nuclear deterrent without nuclear explosive testing; assures allies they don't need their own nuclear arsenals; retains leverage for future arms control agreements; and reduces the numbers and types of weapons in the arsenal.

The current nuclear stockpile is a dramatic departure from the Cold War, and we are retaining only those capabilities we need to sustain stable and effective deterrence. The United States and Russia are both decreasing their deployed strategic nuclear weapons stockpiles under the New START Treaty. We have reduced from 23 nuclear warhead types in 1990 to 12 warhead types today, and the B61-12 Life-Extension Program (LEP) is on track to allow us to reduce further to 6 warhead types by the mid-2020s. The B61-12 will replace multiple variants of the B61 that have different explosive yields, and will have lower yield than some of these variants, but it will not expand the range of yield options available in the current stockpile. It will also replace the B83 strategic bomb, the last megaton-class weapon in the stockpile. The Air Force Tail Kit will provide the B61-12 a measure of improved accuracy to give it the same military capability as the higher-yield bombs it replaces.

The Administration's nuclear sustainment and modernization plan is necessary for sustaining effective deterrence It is essential that Congress support the President's FY 2017 budget request and FYDP for nuclear weapon-related activities. Further delays to the program would put the safety, security, and effectiveness of our nuclear forces at significant and unacceptable risk.

To be clear, our choice is not between keeping or modernizing the current forces. Rather, the choice is between modernizing those forces or watching a slow and unacceptable degradation in our ability to deter.

Many of our systems are already well past their intended service lives. Delaying modernization and warhead life extension programs would diminish the size and degrade the capabilities of our nuclear forces until they age out of service entirely. Neglect and inaction should not determine the size and shape of our deterrent capabilities. These decisions should be based on national security considerations and arms control agreements.

The FY 2017 budget request funds sustainment and recapitalization within the strategic submarine (SSBN) force, the intercontinental ballistic missile (ICBM) force, the strategic bomber force, and our DCA. This includes the B61-12 LEP, and development of a Long-Range Standoff missile (LRSO) to replace the aging Air-Launched Cruise Missile (ALCM).

Credible air leg strengthens effective deterrence

I was asked to focus in particular on the need for the LRSO, and I would like to do so in the context of our overall air-carried nuclear forces. Effective nuclear deterrence requires that the adversary believe that the United States has the capability and the resolve to defend itself and its allies and respond to a nuclear attack. The B61 bomb and the ALCM provide important contributions to the range of credible options available to the President for responding to nuclear attack, especially an attack involving limited nuclear use by an adversary. And because aircraft can be visibly deployed and flown during a crisis, they provide a forceful reminder to an adversary contemplating aggression that the risk it faces is real.

The ability to respond proportionately to a limited nuclear attack strengthens our ability to deter such attacks from ever taking place. This is critical in a world where we must not only avoid unintended escalation, but also deter deliberate nuclear escalation like that envisioned in Russia's current strategy. Deterrence might fail if an adversary believes limited nuclear weapon use against a U.S. ally or partner might coerce the United States to grant concessions or abandon its friends due to a lack of credible, proportionate response options. If allies and partners conclude that they cannot rely on the United States to respond effectively to restore deterrence, they might opt to pursue their own nuclear arsenals, thus undermining our nonproliferation goals. These are conditions that would be truly dangerous and destabilizing.

A strategy of relying on large-scale nuclear response is credible and effective for deterring large-scale nuclear attack, particularly against one's homeland, but it is far less credible in the context of limited adversary use, particularly against an ally or U.S. forces operating abroad. Retaining more diverse nuclear options gives us the ability to minimize collateral damage in the event the President determines that a nuclear response is required. This, however, does not mean that there will be a lower nuclear threshold or higher likelihood of U.S. nuclear use. Indeed, the United States has long maintained a high threshold for nuclear use together with a diverse range of

nuclear forces and response options. The LRSO and B61-12 will sustain that range of existing military capabilities in the face of evolving threats.

B61-12 LEP

The B61-12 LEP will sustain our ability to forward-deploy nuclear weapons with fighter aircraft as well as strategic bombers. It will provide the sole gravity bomb to sustain our strategic and non-strategic air-delivered nuclear deterrent capability and the sole nuclear capability for NATO DCA. It is a critical component to sustaining our extended deterrent commitments in Europe. In its strategic role, the B61-12 is essential for sustaining the B-2 bomber's contribution to our nuclear forces until the LRSO is deployed. It will also retain for the President the unique flexibility that gravity bombs provide through the option of recalling up to the moment of weapon release above a target.

LRSO

The Administration's decision to field a modern ALCM replacement is essential to maintain the ALCM's unique contribution to stable and effective deterrence. The ALCM can be launched by a bomber from outside enemy territory, evade air defenses, and reach targets inaccessible to even a stealth bomber. The current system, initially fielded in 1982, is already decades beyond its planned 10-year service life, and its viability will be challenged over the next decade by advanced air and missile defenses.

Cruise missiles provide capabilities that complement rather than duplicate that of a stealth bomber. Standoff capability improves the survivability of our bomber fleet, extends its effective range, and multiplies the type and number of penetrating targets each bomber presents to the adversary. This complicates the air defense problem facing any country seeking to negate the air component of our deterrent. As air defense capabilities continue to improve and proliferate, we cannot assume our technological lead will forever ensure unchallenged U.S. bomber operations over any target in any theater.

The LRSO is an important element of a modernization program designed to support the policy objective of maintaining strategic stability with Russia and China. The LRSO will utilize a refurbished version of the current W80-1 ALCM warhead. The number of refurbished nuclear warheads will not exceed the current inventory of W80-1 warheads in the active stockpile and

inactive hedge, and is far lower than the approximately 1,000 missile bodies needed to support both the deployed force and testing requirements over the projected lifetime of the system. The LRSO will further contribute to strategic stability by retaining a response option that does not pose the threat of a disarming surprise attack to Russia or China. The process of alerting strategic bombers is observable, and the aircraft and the missile must spend hours flying towards their targets. Thus, ALCMs provide more potential for warning than do either ballistic missiles or ground- and sea-launched cruise missiles forward-deployed in theater or aboard ships on station.

Looking forward

Though we have the right mix of nuclear forces today and, we believe, for the foreseeable future, we need to continually assess our strategy, posture, and capabilities. As the security environment evolves, we must ensure we have the forces and posture required to fulfill the roles of nuclear weapons in U.S. national security strategy – in particular the fundamental role of deterring nuclear attack on the United States and our allies.

Similarly, at Wales, NATO Heads of State and Government recognized the changed security environment in Europe and took a first step towards strengthening the Alliance's deterrence and defense posture by approving the Readiness Action Plan (RAP). The RAP was a direct response to the challenges posed by Russia, but it is not enough. The Alliance continues to renew its emphasis on deterrence and collective defense, and among many other efforts is considering adjustments to ensure NATO's nuclear deterrence capabilities remain credible, flexible, and tailored to the specific threats that it faces – an approach that NATO has followed for decades.

We look forward to your continuing support in our collective efforts to ensure the United States is able to meet the security challenges we face today, as well as those ahead. Thank you again for the opportunity to testify. I look forward to your questions.

Robert M. Scher
Assistant Secretary of Defense for
Strategy, Plans, and Capabilities

CURRENT ASSIGNMENT: Mr. Robert Scher was appointed as the first Assistant Secretary of Defense for the new Office of Strategy, Plans, and Capabilities in December 2014. Mr. Scher is responsible for advising the Secretary of Defense and the Under Secretary of Defense for Policy on: national security and defense strategy; the forces and contingency plans necessary to implement defense strategy; nuclear deterrence and missile defense policy; and security cooperation plans and policies.

PAST EXPERIENCE: Mr. Robert Scher previously served as the Deputy Assistant Secretary of Defense for Plans within the Office of the Deputy Under Secretary of Defense for Strategy, Plans, and Forces. In this role, he oversaw the development of guidance for military campaign and contingency plans, the processes for reviewing and assessing these plans, and the development and implementation of U.S. global defense posture. Prior to serving as DASD Plans, Mr. Scher was the Deputy Assistant Secretary for South and Southeast Asia within the Office of the Assistant Secretary of Defense for Asian and Pacific Security Affairs. In this capacity, Mr. Scher served as the principal advisor to senior leadership within the Department of Defense for all South and Southeast Asia policy matters pertaining to strategies and plans, including international strategy development, and implementation. He was responsible for managing the bilateral security relationships with the nations of this region and spearheaded DoD participation in regional multilateral fora.

Prior to his first appointment in 2009, Mr. Scher was an associate at the consulting firm of Booz Allen Hamilton where he led efforts to assist Asian nations in improving their defense and national security decision making processes. He also led analytical efforts supporting the Office of the Secretary of Defense (OSD) on strategy development and Asia-related issues. Earlier, Mr. Scher worked for 15 years in the Departments of Defense and State, and held numerous posts covering Asian security and defense policy issues. He served as Chief-of-Staff to the Deputy Under Secretary of Defense for Asian and Pacific Affairs in the Office of the Secretary of Defense, overseeing the operation of the OSD office responsible for bilateral and multilateral security relations in Asia. Additionally, Mr. Scher helped develop the strategic basis for U.S. defense strategy, participating in the oversight of the 1993 Bottom-Up Review and the 1997 Quadrennial Defense Review. He co-authored Presidential Decision Directive-56 on conducting complex contingency operations, and was involved in planning for U.S. support to operations ranging from Iraqi election support to deploying U.S. forces to East Timor and the southern Philippines. While at the Department of State, he served on the Secretary's Policy Planning Staff providing advice on Asia, counterterrorism and political military affairs. Mr. Scher entered government service through the Presidential Management Fellowship Program.

EDUCATION: Mr. Scher has a Bachelor of Arts from Swarthmore College, conferred with High Honors, and a Masters of International Affairs from Columbia University's School of International and Public Affairs, where he was awarded a DuPont International Affairs Fellowship.

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House Armed Services Committee

Testimony

Before the

Strategic Forces Subcommittee

Committee on Armed Services

U.S. House of Representatives

Fiscal Year 2017 Budget Request for Nuclear Forces

Witness Statement of Dr. Arthur T. Hopkins,

Principal Deputy Assistant Secretary of Defense

Nuclear, Chemical, and Biological Defense Programs

March 2, 2016

Chairman Rogers, Ranking Member Cooper, and distinguished members of the Subcommittee, thank you for the opportunity to testify today on the Fiscal Year (FY) 2017 budget request for nuclear forces. I am pleased to join Assistant Secretary Scher, Vice Admiral Benedict, and General Rand to discuss the Department of Defense's (DoD's) number one mission: maintaining a safe, secure, and effective nuclear deterrent for as long as nuclear weapons exist.

As the Principal Deputy Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs and the Nuclear Weapons Council (NWC) Acting Staff Director, I work directly for the Under Secretary of Defense for Acquisition, Technology, and Logistics and advise DoD's senior leadership on nuclear matters. The Under Secretary has a dual role in overseeing systems acquisition in the nuclear enterprise: leading the Department's efforts to acquire the strategic nuclear weapons delivery and command and control systems required to meet the operational needs of our Armed Forces, and leading the NWC to address life-extension programs (LEPs) related to nuclear warhead sustainment and the aging nuclear infrastructure required for component and material production. The NWC is a joint DoD and Department of Energy (DOE)/National Nuclear Security Administration (NNSA) council established to facilitate cooperation and coordination, reach consensus, and institute priorities between the two departments as they fulfill their responsibilities for U.S. nuclear weapons stockpile management.

To ensure the continued credibility and reliability of our nuclear deterrent in an increasingly complicated and challenging world, it is essential that Congress support the President's FY 2017 budget request for nuclear weapons-related activities. This budget request demonstrates DoD's commitment to strengthening and modernizing the nuclear Triad. Today, I will summarize the DoD and NWC perspectives on, and priorities for, warhead life-extension, nuclear weapon delivery systems modernization and replacement, nuclear enterprise

infrastructure modernization, stockpile sustainment, and the challenges we face today and tomorrow to ensure a safe, secure, effective, and reliable nuclear stockpile.

Nuclear Enterprise Challenges

The NWC convenes to ensure synchronization of the Departments' vision, strategies, and schedules of the nuclear enterprise programs. Specifically, the NWC focuses its attention on nuclear enterprise challenges in four vital areas. First, we must maintain and strengthen our ability to extend the lives of aging warheads, as the majority of today's nuclear weapons and delivery systems have surpassed their initial design life. This is accomplished through comprehensive component reuse, refurbishment, and replacement, while we ensure alignment with existing and future delivery systems (Table 1 summarizes the current and future nuclear Triad composition). Second, we must safeguard our ability to provide the rigorous science and engineering expertise required to assess the aging nuclear weapons stockpile, and certify the safety and effectiveness of that stockpile without underground nuclear testing. Third, we must remain steadfast in our commitment to sustain and modernize our aging infrastructure that provides materials, components, and testing facilities essential to our nuclear deterrent enterprise. And fourth, DoD must address the challenges of sustaining and modernizing all parts of our

Table 1. The Current and Future Triad Composition

	ICBM[1]	**SLBM**[2]	**Air-Leg**
	Current		
Weapon System	W87 Warhead W78 Warhead	W76 Warhead W88 Warhead	B61 Bomb B83 Bomb W80-1 Warhead
Delivery System	Minuteman III	Trident II D5	B-2A B-52H F15/F16 ALCM[3]
	Future		
Weapon System	IW-1[4] IW-2 IW-3	IW-1 IW-2 IW-3	B61-12 Bomb W80-4 Warhead
Delivery System	GBSD[5]	D5 Follow-on	B-2A B-52H F-35 LRSB[6] LRSO[7]

[1] Intercontinental Ballistic Missile
[2] Submarine-Launched Ballistic Missile
[3] Air-Launched Cruise Missile
[4] Interoperable Warhead
[5] Ground-Based Strategic Deterrent
[6] LongRange Strike Bomber
[7] Long-Range Standoff

nuclear force structure, and we must ensure that the Nation's nuclear weapons sustainment programs and delivery system modernization programs are funded and aligned.

DoD Stockpile Requirements

The Administration envisions a future stockpile that is flexible and adaptable to technical and geopolitical changes and to achieve this end has endorsed the 3+2 stockpile strategy. This strategy includes three interoperable nuclear explosive packages for ballistic missiles and two air-delivered warheads. Interoperability will reduce the number of different nuclear weapons systems that must be maintained and serviced, while providing sufficient diversity among deployed systems to guard against potential technical issues in the stockpile. The 3+2 strategy simultaneously addresses stockpile obsolescence and meets policy objectives of sustaining deterrence through a smaller stockpile with fewer weapon types and a modernized, responsive nuclear infrastructure capable of addressing technological and geopolitical surprise. The Interoperable Warhead 1 (IW1) will be the first of three ballistic missile warheads to be produced under the 3+2 strategy. The Feasibility Study and Design Options development phase for IW1 will start in FY 2020.

To support the 3+2 strategy and revitalize the enterprise, in 2012 the NWC baselined a 25-year integrated schedule for the nuclear weapons stockpile – known as the NWC Strategic Plan. It aligns warhead LEPs and infrastructure needs with delivery system modernization and replacement efforts. The NWC Strategic Plan integrates NNSA nuclear security enterprise requirements and plans with military requirements.

Budget realities have forced changes to the Strategic Plan since 2012. Specifically, the NWC endorsed deferrals to key warhead LEPs and infrastructure modernization milestones, delaying overall implementation of the 3+2 strategy. The NWC delayed the IW1 and the Long-Range Standoff (LRSO) warhead schedules. For the B83-1 bomb, it adjusted the deployment

requirement. For the B61-12 bomb LEP, the NWC accepted a schedule delay due to the sequestration-related cuts in the FY 2014 budget. Plutonium pit production schedules and supporting plutonium infrastructure investments experienced significant delays due to shortfalls in the FY 2013 and FY 2015 appropriations. The current Strategic Plan includes these and other adjustments. Changes include adding high-explosive material replacement in the W88 SLBM warhead Alteration (ALT) 370; aligning the W80-4 LRSO missile warhead development schedule with the requirement for a FY 2025 First Production Unit (FPU); and adding tritium production capability to the NWC Strategic Plan.

The Council remains fully committed to ensuring the viability of each of the three legs of the nuclear Triad and revitalizing the nuclear enterprise. DoD and NNSA are moving forward with several weapon systems LEPs to support the Nation's long-term deterrent capabilities. The SLBM-based W76-1 warhead and the B61-12 bomb for the air-delivery systems are the most urgent warhead life-extension needs in our stockpile, and the FY 2017 President's budget request fully funds these LEPs. The W76-1 LEP is beyond the halfway mark and is on-schedule to complete production in FY 2019. The B61-12 LEP, which includes the Air Force-provided Tailkit Assembly, is undergoing development engineering and remains on schedule and within budget to meet its March 2020 FPU. The Air Force has funded the tailkit development and production to synchronize with NNSA bomb assembly work. The B61-12 LEP consolidates four variants of the B61 bomb and improves the safety and security of the oldest nuclear weapon system in the U.S. arsenal. The B61-12 LEP will: 1) result in a nearly 50 percent reduction in the number of nuclear gravity bombs in the stockpile; 2) facilitate the removal from the stockpile of the last megaton-class weapon — the B83-1; 3) achieve an 80 percent reduction in the amount of special nuclear material in these bombs; and 4) implement the first step of the 3+2 strategy.

The FY 2017 budget also funds sustainment of the SLBM-based W88 warhead, which is undergoing development engineering to replace the aging arming, fuzing, and firing system, and refresh the conventional high explosive. That program is on schedule to achieve a December 2019 FPU.

The NWC evaluated options and selected the existing W80-1 warhead as the basis for the follow-on warhead for the Air-Launched Cruise Missile (ALCM) replacement, the LRSO cruise missile. The LRSO will sustain the deterrent capability currently provided by the existing ALCM, which has been in service since 1982. The LRSO cruise missile is integral to our current deterrence strategy. It complements penetrating bomber capability by extending its effective range, and it complicates adversaries' air defense operations. The LRSO warhead LEP, designated as the W80-4, is now in the Feasibility Study and Design Options development phase. To synchronize the warhead and delivery system schedules, the W80-4 LEP and LRSO cruise missile acquisition communities continue to collaborate and align their concurrent development efforts. The W80-4 FPU is planned for 2025 with the first LRSO cruise missile to be delivered in 2026.

The greatest challenge for the NWC is to achieve and maintain the necessary resources for three critical areas. To allow continued certification and ensure our nuclear weapons remain safe, secure, and effective, we must be vigilant in sustaining and life-extending our stockpile and delivery systems; sustaining and modernizing our aging nuclear enterprise infrastructure; and preserving stockpile science and engineering. It is imperative that Congress support the full nuclear-related budget requests to ensure national security requirements continue to be met.

NATO Extended Deterrence

Nuclear deterrence remains a vital and central element of U.S. and allied and partner national security, and our commitment to collective security of the North Atlantic Treaty

Organization (NATO) Alliance is firm. Forward-deployment of B61 nuclear bombs is a key aspect of our commitment to extend deterrence to our NATO Allies in Europe. Through NATO nuclear burden-sharing, Allies actively participate in the Alliance's nuclear deterrence mission. This arrangement forms an integral part of collective defense and mutual assurance and is a core component of the Alliance's deterrence and defense posture.

Revitalizing the Nuclear Infrastructure

The 2010 Nuclear Posture Review stressed the importance of an NNSA infrastructure that can respond to technical challenges or geopolitical surprises and enable stockpile reductions. The NWC focuses specifically on the plutonium, uranium, and tritium capabilities needed to support the current and future nuclear weapons stockpile. Our nuclear enterprise infrastructure challenges are two-fold: addressing aged, end-of-life facilities maintenance, recapitalization, and replacement, and working to achieve a more responsive infrastructure. DoD reinforces NNSA's need to develop responsive and productive plutonium and uranium capabilities, as well as the ability to produce tritium to meet planned stockpile needs.

Stockpile Stewardship

Science and Engineering is paramount to the ability to sustain a safe, secure, reliable, and effective deterrent. The Stockpile Stewardship Program has ensured confidence in the reliability and effectiveness of the nuclear stockpile without nuclear weapons testing. NNSA's Stockpile Stewardship Program, composed of research, development, testing, and evaluation (RDT&E) facilities and personnel, enables the surveillance and assessment of the stockpile condition by identifying anomalies, evaluating impacts on warhead performance, and implementing solutions. In general, RDT&E supports broader national security objectives by providing capabilities to avoid technological surprise and to maintain confidence in system performance. The NWC

Strategic Plan relies on continued investments in research, development, design, and production capabilities.

DoD Delivery System Requirements

In accordance with the Nuclear Posture Review's guidance to maintain a Triad within the central limits of the New START Treaty with the Russian Federation, DoD has a robust plan for recapitalizing the ballistic missile submarines, ICBMs, SLBMs, air-launched cruise missiles, nuclear-capable heavy bombers, and dual-capable aircraft that comprise our strategic nuclear deterrent. Our budget request supports our plans to ensure that current nuclear delivery systems will be sustained, and that the modernization and replacement programs are executable and on schedule to avoid capability gaps. The FY 2017 Request continues to fund: the OHIO Class Replacement submarine and Trident II (D5) missile life-extension; a follow-on capability to the Minuteman III ICBM — the Ground-Based Strategic Deterrent (GBSD); upgrades to the B-2A and B-52H heavy bombers as well as development of a new long-range, penetrating bomber; and development of an LRSO cruise missile to replace the current ALCM.

The OHIO Replacement Program requires adequate resources and a stable, predictable funding profile to ensure that on-time construction starts in FY 2021 in order to meet the patrol need date of FY 2031. There is no margin left in the OHIO Replacement schedule. Delays would put at risk the most survivable leg of the Nation's nuclear Triad. The OHIO Replacement Program submarines will have a service life that enables patrols into the 2080s.

The Air Force has completed a GBSD Analysis of Alternatives to study the full range of options to recapitalize the land-based leg of the Triad beyond the extended service life of the Minuteman III ICBM. The FY 2017 budget funds initial development work for the GBSD. The Air Force's FY 2017 budget request also includes funding to continue the development of a long-range, penetrating aircraft that incorporates proven technologies — the Long Range Strike

Bomber. Additionally, the FY 2017 budget contains funding for Block 4 of the F-35 program, which supports follow-on capabilities for the F-35, including integration of a nuclear delivery capability for the F-35A. The F-35A Dual Capable Aircraft (DCA) will maintain a critical capability that is needed for non-strategic nuclear missions in support of the Nation's extended deterrence and assurance commitments.

DoD's budget request is consistent with plans to ensure that current nuclear delivery systems can be sustained and that modernization and replacement programs are executable and on schedule to avoid capability gaps. The modernization and replacement programs will require increased investment over current levels for much of the next 15 years. DoD is taking steps to control the costs of these efforts. However, even with success in this regard, we face budget decisions entering the 2020s to fund the necessary OHIO Class Replacement and the Air Force strategic deterrent recapitalization programs.

The nuclear enterprise remains DoD's highest priority, and the President's budget request for FY 2017 reflects the Administration's emphasis on the nuclear enterprise. In the near term, we are making focused and sustained investments in modernization and manning across the nuclear enterprise. These investments are critical to ensure the continued safety, security, and effectiveness of our nuclear deterrent, as well as the long-term health of the force that supports our nuclear Triad. DoD's fiscal year 2017 budget request includes significant resources for enterprise improvements, with an increase of approximately $200 million in FY 2017 from FY 2016 to ensure the continued health of this essential enterprise.

Conclusion

The President's FY 2017 budget request supports the Nation's nuclear deterrent strategy. It includes $19 billion in FY 2017 and approximately $108 billion across the FYDP, adding $9.8 billion to recapitalize the nuclear Triad and strategic command, control, and communication

systems. Resources are needed to sustain and modernize our nuclear forces and ensure a safe, secure, and effective deterrent. DoD remains committed to maintaining its close and vital partnership with DOE and Congress in meeting the Nation's most fundamental security needs. The President's FY 2017 budget request continues the process of fielding a strong nuclear deterrent that is supported by an agile and responsive infrastructure and valued workforce. In closing, I respectfully ask that you support the President's FY 2017 nuclear forces' budget request.

Dr. Arthur T. Hopkins

Dr. Arthur T. Hopkins is the Principal Deputy Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs. As the Principal Deputy, Dr. Hopkins advises the Assistant Secretary in all matters across the Nuclear, Chemical, and Biological Defense Programs portfolio, including nuclear matters, chemical and biological defense programs, chemical demilitarization, cooperative threat reduction, arms control, and countering weapons of mass destruction.

Prior to his current appointment, Dr. Hopkins served as the Deputy Assistant Secretary of Defense for Threat Reduction and Arms Control, where he was the DoD Treaty Manager for implementation and compliance with international nuclear, chemical and biological treaties and agreements, and advisor to the Assistant Secretary for NCB on planning, acquisition, and execution of programs for countering weapons of mass destruction (WMD) issues.

Dr. Hopkins holds Bachelor and Master of Science degrees in Engineering, Aerospace and Atmospheric Sciences, and Master of Science and Doctoral degrees in Nuclear Engineering.

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HOUSE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE HOUSE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: Status of Air Force Nuclear and Global Strike Systems

STATEMENT OF: General Robin Rand, Commander
Air Force Global Strike Command

March 2, 2016

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Introduction

Chairman Rogers, Ranking Member Cooper, and distinguished Members of the Committee; thank you for allowing me to represent the over 31,000 Air Force Global Strike Command (AFGSC) Airmen. This is my first opportunity to appear before this committee and I look forward to updating you on what the Command has accomplished and where we are going.

Air Force Global Strike Command Mission

As you know, the Command was created to provide a focus on the stewardship and operation of two legs of our nation's nuclear triad while also accomplishing the conventional global strike mission. We live in a world that continues to rapidly change and until we have the peace and security of a world without nuclear weapons we must never forget the stabilizing influence the triad has on our allies, partners, and adversaries. The nuclear mission remains our top priority, however we must not discount the important work our Airmen do conventionally. In fact, this past year AFGSC assumed command of the B-1B mission, bringing all Air Force bombers under one command. In order for us to be effective across the spectrum of conflict from day-to-day deterrence and assurance operations to nuclear engagement, our Airmen must be ready and equipped with the right tools to do the job. Continuing in the proud heritage of Strategic Air Command, yet tailored for today's evolving world, AFGSC's mission is: "Airmen providing strategic deterrence, global strike and combat support…anytime, anywhere!"

The Command's top priority is to ensure our nuclear arsenal is safe, secure, and effective. This priority underlies every nuclear-related activity in AFGSC whether it is the maintainer turning wrenches or our planners working on future weapon systems. We must never fail in the special trust and confidence the American people have bestowed on our nuclear warriors. It means that leaders must continue to support and advocate for the sustainment and modernization of these weapon systems.

Our conventional bomber forces defend our national interests by deterring or, should deterrence fail, defeating an adversary; they also assure our allies and partners around the globe. Two capabilities are fundamental to the success of our bomber forces: our ability to hold heavily defended targets at risk and our ability to apply persistent combat power across the spectrum of conflict anywhere on the globe at any time. The United States' fleet of heavy bombers provides the nation a visible global warfighting capability that is essential to the credibility of America's

national security strategy. These bombers carry our latest high-tech munitions in quantities to ensure the Air Force can meet our nation's global responsibilities, and therefore are in high-demand by the regional Combatant Commanders.

Air Force Global Strike Command Forces

Intercontinental Ballistic Missile Forces

Twentieth Air Force (20 AF), one of two Numbered Air Forces in AFGSC, is responsible for the Minuteman III (MM III) Intercontinental Ballistic Missile (ICBM) and UH-1N helicopter forces. The 450 dispersed and hardened missile silos maintain strategic stability by presenting potential adversaries a near insurmountable obstacle should they consider a disarming attack on the United States. Currently, no potential adversary can hope to destroy this force without depleting its own arsenal. Every day Airmen deploy to our three missile fields, executing strategic deterrence and assurance operations, while standing ready to execute if called upon. They accomplish this mission in a challenging environment and on a massive scale; our missile crews, maintenance teams, security forces personnel, and others who support this mission traveled over 17.9 million miles last year alone. This is a unique and critical mission area that deserves our attention. As part of the Air Force's efforts to improve the nuclear enterprise, 20 AF assumed stewardship of the 377th Air Base Wing at Kirtland AFB. As part of that transfer, the Kirtland Underground Munitions Maintenance and Storage Complex now falls under 20 AF and AFGSC thereby bringing a critical mission set under a nuclear focused command.

Minuteman III

We continue to sustain and modernize the Minuteman III ICBM. This includes upgrading the command, control, and communications systems and support equipment. We continue moving forward on the Transporter Erector (TE) Replacement Program (TERP) and the Payload Transporter (PT) Replacement (PTR) to modernize our existing fleet of large maintenance vehicles utilized to transport missile components to and from the field. We currently expect TERP to reach initial operational capability (IOC) in FY18 and PTR to begin production in FY17.

We are also equipping ICBM launch control centers (LCC) with modernized communications systems that will upgrade or replace aging and obsolete systems. The LCC Block Upgrade, expected to begin deployment in 2020, is an overall modification effort that

replaces multiple LCC components to include a modern data storage replacement for floppy disks and new Voice Control Panels to provide higher fidelity voice communications. We continue to push forward on improving Remote Visual Assessment at our remote LFs, a significant security upgrade, to improve situational awareness and security. We expect this program to be IOC in FY19. Another very important program, ICBM Cryptographic Upgrade II, is scheduled to begin production in FY17 and will improve our cryptographic security while dramatically streamlining code change operations.

We conducted four successful MM III flight tests in Fiscal Year 2015 that, along with one Simulated Electronic Launch Minuteman test in the operational environment, demonstrate the operational credibility of the nuclear deterrent force and the AF's commitment to sustaining that capability. Operational flight testing is currently funded and planned for four operational test launches in FY16 to satisfy requirements outlined by United States Strategic Command (USSTRATCOM) and the National Nuclear Security Administration (NNSA). In fact, we have already launched one of those and expect to launch the next two this month.

Ground Based Strategic Deterrent

The Minuteman flight system, currently on its third model, has been on continuous alert since the early 1960s and has proven its value in deterring our adversaries and assuring our allies well beyond the platform's initial 10-year lifespan. ICBM capability gaps were identified and validated by the Joint Requirements Oversight Council, and subsequently approved in August 2012 by the Air Force Chief of Staff, resulting in an Analysis of Alternatives (AoA). The AoA was completed in 2014 and concluded that an integrated replacement to the MM III weapon system was the most cost-effective approach to filling capability gaps. Office of the Secretary of Defense (OSD) Cost Assessment and Program Evaluation (CAPE) reviewed the AoA report and validated it as "sufficient to support a Milestone A decision and initiate a program of record." SAF/AQ approved the Ground Based Strategic Deterrent (GBSD) Acquisition Strategy in December of last year and directed the program to proceed to the Milestone A Defense Acquisition Board. Additionally, we are engaged with our Navy partners to further investigate areas for intelligent commonality between potential GBSD systems and future Navy weapons. We hope to find areas of overlap with the objective of reducing design, development, manufacturing, logistics support, production, and testing costs for the nation's strategic systems while still acknowledging that the different weapon systems will have some requirements that

necessitate unique solutions due to their differing missions. We are also collaborating with the NNSA to develop a life extension program for our aging W78 nuclear warhead, which will operate on both MMIII and GBSD.

Due to system age-out, the first priority is to replace the missile itself. However, command and control (C2) and infrastructure recapitalization is necessary to continue safe, secure, and effective operations. It is no small task to upgrade the command and control systems along with the underlying infrastructure that supports the weapon system. For example, at our largest missile field operated by the 341st Missile Wing, we must connect and support hardened systems across almost 14,000 square miles, an area the size of Maryland. This vital nuclear command and control is currently serviced by buried copper wire and equipment installed in the 1960s. AFGSC is defining approaches to upgrade C2 and modernize necessary facilities. GBSD cannot be viewed as just another life extension to our existing MMIII; it is time to field a replacement ground-based capability that will continue to assure our allies and deter potential adversaries well into the future. Thank you for your continued support of GBSD ensuring it will lead to a viable replacement for the MM III ICBM.

UH-1N

AFGSC is the lead command for the Air Force's fleet of 62 UH-1N helicopters. The majority of these aircraft support two critical national missions: nuclear security in support of the ICBM force and the Continuity of Operations and transport missions in the National Capital Region. They also actively participate in the Defense Support of Civil Authorities program often being called to help with search and rescue activities.

The UH-1N does not meet the missile field needs for range, speed, and capacity as outlined by DOD and USSTRATCOM requirements. We will continue to work to mitigate some of these requirement gaps through various measures such as arming the UH-1N and providing re-fueling stations throughout the missile complex. However, there are certain requirements we are unable to mitigate and I am happy to discuss that further in a classified environment.

UH-1N Follow On

While we can, to some extent, mitigate the UH-1N's deficiencies in range, speed, and payload, no amount of modification to this 1960s platform will close these critical capability gaps entirely. Recognizing that we cannot modify our UH-1Ns to resolve the capability gaps, we are dedicated to replacing the aircraft with a medium lift helicopter capable of meeting mission

requirements. The UH-1N Replacement Program was funded in FY 2016 and we are now moving out to deliver this capability and closing this critical gap. This past January, the Air Force conducted a High Power Team which confirmed our most critical capability requirements. Our counterparts in SAF/AQ and Air Force Materiel Command (AFMC) are evaluating acquisition approaches that focus on expediting the fielding of replacement helicopters for the nuclear convoy escort and missile field support missions. While we work to deliver the aircraft, we must also work through support challenges such as infrastructure, maintenance, and aircrew training. I can assure you that Secretary James, our Chief, General Welsh and I are completely dedicated to delivering the replacement helicopters as soon as possible.

Bomber Forces

Eighth Air Force is responsible for the B-52H Stratofortress (B-52), the B-2A Spirit (B-2), and most recently the B-1B Lancer (B-1) bombers. This includes maintaining the operational readiness of the dual-capable bombers' nuclear and conventional missions. The B-52 is an extremely versatile weapon system providing precision, large payload, and timely global strike capabilities both conventional and nuclear. Complementing the B-52, the B-2 can penetrate an adversary's most advanced Integrated Air Defenses Systems to strike heavily defended and hardened targets. Our flexible dual-capable bomber fleet is the most visible leg of the nuclear triad. They provide decision makers the ability to demonstrate resolve through generation, dispersal, or deployment. And our ability to rapidly place bomber sorties on alert ensures their continued survival in support of the President and to meet combatant command requirements. The B-1 is an incredibly potent weapon system that has been in high demand by combatant commanders due to its wartime capabilities and mission flexibility as steadily demonstrated in conflicts since 2001.

Global Assurance and Deterrence

Continuous Bomber Presence (CBP), initiated in 2003, increases regional stability and assures our allies and partners in the United States Pacific Command (USPACOM) area of responsibility (AOR). We have taken steps to increase continuity of operations and maintenance by establishing a detachment at Andersen Air Force Base, Guam. While CBP is seen as a strong signal to our allies of our commitment to the region, it impacts AFGSC personnel and resources. Sustaining a long-term presence in USPACOM introduces stress in other areas as our bomber

force is requested by other combatant commanders. Complementary to CBP, our bombers exercise with every combatant command and every joint partner annually through the Bomber Assurance and Deterrence program. These visible exercises take place all over the globe are a continuous reminder to allies and potential adversaries of our nation's global reach.

B-1

The B-1 is a highly versatile, multi-mission weapon system that carries the largest payload of both guided and unguided weapons in the Air Force inventory. It can rapidly deliver large quantities of precision and non-precision weapons in support of combatant commanders around the globe.

The B-1's synthetic aperture radar is capable of finding, tracking, and targeting moving vehicles as well as having terrain-following modes and air-to-air situational awareness. The SNIPER-SE pod provides additional capability to engage fixed or moving targets. In addition, an extremely accurate Global Positioning System-aided Inertial Navigation System enables aircrews to navigate without the aid of ground-based navigation aids as well as strike targets with a high level of precision. The Digital Communications Initiative (DCI) modification to the radios provides a secure beyond line of sight satellite connection into the Line of Sight Link-16 network. In a time sensitive targeting environment, the aircrew can use targeting data over DCI, then strike emerging targets rapidly and efficiently. This capability was effectively demonstrated during operations Enduring Freedom, Iraqi Freedom, and Inherent Resolve.

The B-1 will be in demand for many more years and avionics and weapon upgrades are critical for it to remain a viable Combatant Commander tool. The Integrated Battle Station (IBS)/Software Block-16 (SB-16) upgrade, the largest ever B-1 modification, includes an upgraded Central Integrated Test System (CITS), Fully Integrated Data Link (FIDL), Vertical Situation Display Upgrade (VSDU), and a simulator upgrade. This marks a fantastic capability upgrade and the associated cockpit upgrades providing the crew with a much more flexible, integrated cockpit. In fact, the first 15 IBS-modified aircraft have been delivered, fully equipping an entire bomb squadron with these upgraded capabilities.

Our B-1 aircrews have been heavily engaged in combat operations; since September 11, 2001, they have flown well over 14,000 combat missions. As you may have heard already, the B-1s have begun departing the United States Central Command (USCENTCOM) AOR to help facilitate needed upgrades. This is a much needed respite to ensure the aircrews and aircraft are

ready to support combatant commanders. However, AFGSC stands ready to support any combatant commander with our other capable platforms to ensure no gap in combatant command requirements. For instance, the B-52 can very capably step back into a role it has filled in the past in the USCENTCOM AOR; its large payload of precision weapons will meet combatant commander needs in theater, and our crews constantly train to ensure they are combat ready should they get the call. In the event of a bomber-capable "Request for Forces" by USCENTCOM, I've directed our two B-52 wings to be ready and prepared to backfill the B-1s later this spring.

B-52

The B-52 may be the most universally recognized symbol of American airpower…its contributions to our national security through the Cold War, Vietnam, Desert Storm, Allied Force, Iraqi Freedom and Enduring Freedom are well documented. Our Airmen have worked tirelessly to keep the venerable B-52 mission capable. The B-52 is able to deliver the widest variety of nuclear and conventional weapons. This past year, we maintained complete coverage of our Nuclear Deterrence Operations requirements while supporting our overseas CBP for Pacific Command.

I anticipate the B-52 will remain a key element of our bomber force beyond 2040; it is paramount that we invest resources into this aircraft now to keep it viable in both conventional and nuclear mission areas for the next 30 years. Our B-52s are still using 1960s radar technology with the last major radar upgrade done in the early 1980s. Currently, the mean time between failure rate on the B-52 radar is 46 hours. The current radar on the B-52 will be even less effective in the future threat environment, and without an improved radar system on the B-52, there will be increased degradation in mission effectiveness. In order to remedy this, the B-52 Radar Modernization Program is approaching the conclusion of a Cost Capability Analysis Study and will be working toward an AoA sufficiency review in early Spring this year. Additionally, we are always looking at cost-effective ways to improve efficiency and performance of this important bomber.

Finally, I want to point out that we are still in work to convert 30 operational B-52 aircraft and 12 in storage to conventional-only configurations. We are on track to meet our New START Treaty requirements.

B-2

For over 25 years, our 20 B-2s have provided the nation with an assured penetrating bomber capability. In each of our nation's last four conflicts, the B-2 has led the way. This is a direct result of the outstanding Airmen who work to operate, maintain, and secure the aircraft. The B-2 is able to penetrate enemy defenses and deliver a wide variety of nuclear and conventional weapons due to its long-range and stealth capability.

We will preserve and improve the B-2's capability to penetrate hostile airspace and hold any target at risk without subjecting the crew and aircraft to threats. We are striving to maintain the proper balance of fleet sustainment efforts, testing, aircrew training, and combat readiness. The dynamics of a small fleet continue to challenge our sustainment efforts primarily due to vanishing vendors and diminishing sources of supply. AFMC is working to ensure timely parts availability; however, many manufacturers do not see a strong business case in supplying parts for a small aircraft fleet. Problems with a single part can have a significant readiness impact on a small fleet that lacks the flexibility of a large force to absorb parts shortages and logistics delays.

Long Range Strike Bomber

The combat edge of our B-2 is being challenged by next generation air defenses and the proliferation of these advanced systems. The Long Range Strike Bomber (LRS-B) program will extend American air dominance against next generation capabilities and advanced air defense environments. We continue to work closely with partners throughout the Air Force to develop the LRS-B and field a fleet of new dual-capable bombers; scheduled to become operational in the mid-2020s. Make no mistake – the LRS-B will be a nuclear bomber. However, the platform will not be delayed for use in a conventional capacity while it undergoes final nuclear certification. The LRS-B is being designed with an open architecture which will allow us to integrate new technology and respond to future threats for many years into the future. Thank you for your continued support for this critical program as it moves forward.

Air Launched Cruise Missile

The AGM-86B Air Launched Cruise Missile (ALCM) is an air-to-ground, winged, subsonic nuclear missile delivered by the B-52. It was fielded in the 1980s and is well beyond its originally designed 10-year service life. To ensure the USAF maintains its credible stand-off nuclear capability, the ALCM requires Service Life Extension Programs (SLEP). These SLEPs

require ongoing support and attention to ensure the ALCM will remain viable through 2030. Despite its age, last year we successfully conducted eight flight test evaluations and have 7 planned during FY16. Additionally, AFGSC continues to maintain the conventional variant (CALCM) to ensure it continues to provide conventional stand-off strike capability.

Long Range Stand-Off Missile

The LRSO is the replacement for the aging ALCM. The ALCM has significant capability gaps that will only worsen through the next decade. The LRSO will be a reliable, flexible, long-ranging, and survivable weapon system to complement the nuclear Triad. The LRSO missile will ensure the bomber force (B-52, B-2 and LRS-B) can continue to hold high value targets at risk in an evolving threat environment, to include targets within an area denial environment. I cannot overemphasize this point: LRS-B without LRSO greatly reduces our ability to hold adversaries at risk and to execute the mission. The LRSO will be compatible with the B-52, B-2, and the LRS-B platforms and we currently expect it to reach Milestone A this fiscal year. Additionally, we are synchronizing our efforts with NNSA to develop the W80-4 warhead to be fully integrated with LRSO.

B61

The B61-12 Life Extension Program (LEP) will result in a smaller stockpile, reduced special nuclear material in the inventory, and improved B61 surety. AFGSC is the lead command for the B61-12 Tail Kit Assembly program, which is needed to meet USSTRATCOM requirements on the B-2. The B61-12 Tail Kit Assembly program is in the Engineering and Manufacturing Development Phase 1 and is synchronized with NNSA efforts. The design and production processes are on schedule and within budget to meet the planned Fiscal Year 2020 First Production Unit date for the B61-12 Tail Kit Assembly, and support the lead time required for the March 2020 B61-12 all-up round. This joint Department of Defense and Department of Energy endeavor allows for continued attainment of our strategic requirements and regional commitments.

GBU-57

AFGSC assumed responsibility as the lead MAJCOM for the GBU-57 Massive Ordnance Penetrator (MOP) in the Summer of 2015. The MOP is a 30,000-pound guided conventional bomb designed to defeat hardened and deeply buried targets and is exclusively employed from the B-2. The MOP was initially designed as a Quick Reaction Capability following a

USCENTCOM Urgent Operational Need. Since then it has received several upgrades and enhancements based on warfighter requirements. AFGSC, USCENTCOM, and AFLCMC (MOP Program Office) are currently conducting two more enhancements to increase weapon effectiveness.

Security

Nuclear security is a key function of the Command's mission. A major AFGSC initiative to ensure security continues to be the new Weapon Storage Facilities (WSF) which will consolidate nuclear maintenance, inspection, and storage. We have put forward a $1.3 billion program ($521 million across the FYDP) to replace all deficient buildings across our aging 1960's-era Weapon Storage Areas with a single modern and secure facility at each of our bases. This initiative eliminates security, design, and safety deficiencies and improves our maintenance processes. We included $95 million in funding for the WSF at F. E. Warren AFB, WY, in the last year's budget and the MILCON for the remaining facilities in future years. These facilities are needed to meet requirements for a safe, secure, and effective nuclear arsenal.

Nuclear Command, Control, and Communications

The ability to receive Presidential orders and convert those orders into action for the required weapon system is both critical to performing the nuclear mission and foundational to an effective credible strategic deterrent. The Air Force took an important step this year by declaring Nuclear Command, Control, and Communications (NC3) a weapon system which recognizes the absolute importance of these systems that ensure proper nuclear command and control. Declaring NC3 a weapon system is no small matter; it begins a process to manage this new weapon system's training, resources, and sustainment just like all other weapons systems in the AF. AFGSC is the lead command for National Leadership Command Control (NLCC)/NC3 which establishes one focal point for the weapon system. Since these systems are spread across the government, there are multiple working groups at all levels to ensure open communications. In fact, I chair the Air Force NLCC/NC3 Council where we bring together MAJCOM commanders to prioritize resources and resolve any outstanding issues. I think it is also important to highlight the hard work Air Force Nuclear Weapons Center (AFNWC) and AFMC have put into this effort to support not only the systems but AFGSC as a whole. As I will discuss

later, we are codifying these relationships to establish clear lines of authority and responsibility which will only improve NC3 sustainment and modernization.

AFGSC has made tremendous gains in efforts to modernize our communications and cyberspace infrastructure by leveraging technology to make our forces more capable and effective. In our ICBM missile fields, the copper cabling that transport voice and data between the main base and the Missile Alert Facilities (MAFs) in some cases dates back to 1960s technology and equipment. We have undertaken a major modernization initiative to replace old cabling with modern technology that will realize over a 15-fold increase in data capability and improve missile field command and control with unclassified and classified networking, wireless networking, and secure digital voice to the MAFs. These are important upgrades but they still do not replace the buried copper nuclear command and control lines. We are also addressing mission assurance for our main bases and have begun to look at issues of bandwidth allocation and the routing of long-haul telecommunications circuits into our installations to best guarantee continuity of service.

Ultimately, we have taken seriously our charge with sustaining and modernizing the NC3 weapon system. In fact, through the Nuclear Enterprise Review process we identified multiple areas that have atrophied through decades of low prioritization. To remedy that, we are funded for $16 million to improve long-haul communications, $8 million in telephony upgrades, and $2 million in radio upgrades. These are just examples of the things we have been able to accomplish with the support of those inside and outside the DOD. Thank you very much for your continued interest and support in NC3; we are in agreement on what needs to be done in the future and I look forward to continuing our efforts.

Nuclear Enterprise Review

As this committee is well aware, the Air Force and this command have undertaken momentous shifts to support our number one priority. Our Airmen are beginning to see resourcing balanced against mission requirements. They see mid-career leaders mentoring those below them, educating them on the importance of their missions. And they see their most senior leaders in the Administration, in the Department, and here in Congress acting on their behalf.

I will lay out a number of accomplishments that have been possible thanks to the support of leadership in all branches of government, the DOD, and the Air Force. But first I would like

to recognize the hard work and leadership of my predecessor, Lieutenant General Stephen Wilson; he embraced the challenge and AFGSC is better for it. I sit before you today as the first 4-star commander of AFGSC and the AF now has a 3-star as the Deputy Chief of Staff for Strategic Deterrence and Nuclear Integration. This recognizes the importance of the nuclear enterprise within the Air Force and elevates our advocacy. Additionally, as part of the Nuclear Enterprise Review (NER) we found we needed to link all the disparate nuclear activities within the AF into a more synchronized and focused structure to provide direction and support for our nuclear forces. The Secretary of the Air Force and Chief of Staff directed the AFGSC Commander be the single face for the AF for "all things nuclear". We are currently in the process of implementing that guidance which will culminate with AFGSC as the lead command for the nuclear deterrent operations mission and the AFNWC restructuring to provide "direct support" to AFGSC for all material elements of the nuclear enterprise.

We are shifting our security forces members from PRP to the Arming and Use of Force (AUoF) standards. This maintains the high standards required in our business while reducing the administrative workload driven by maintaining two overlapping reliability programs. This ensures our security forces members across the Air Force are held to the same standard and improves mobility between bases. Additionally, we have improved the equipment and uniforms of our missile field defenders through our Model Defender program.

Across the maintenance, operations, and security forces career fields we have implemented the Assignment Incentive Pay (AIP) which reflects the incredible responsibility placed on our nuclear Airmen's shoulders. For our enlisted members in critical career fields we have implemented the Special Duty Assignment Pay (SDAP). AIP and SDAP are but a small way we recognize the hard work our Airmen accomplish in this demanding and ever-important field.

For our ICBM operations, we have implemented a number of changes. Among them is re-imagining the crew construct altogether. We have revamped training to remove the blurring of lines between training and evaluating; implementing reforms to increase the proficiency of our missile crews. We have also changed how the crew tour works. Previously, most crew members would spend four years at their missile base, progress through the different leadership positions, and then move on to another assignment. Instead we are moving to a "3+3" concept where a crewmember will spend the first three years as a deputy and commander becoming an expert on

the weapon system. Most of the crew force will then move to another ICBM base where they will fill instructor, evaluator, and flight commander roles; for those who do not move, they will fill those same roles at their current duty station.

We have been implementing changes for our bomber forces, as well. For instance, we have completely overhauled B-52 initial and mission qualification training and are advancing B-52 simulator upgrade timelines to better support nuclear mission training. Additionally, we have developed up our Striker Vista program to advance integration between bomber platforms through the transfer of personnel between wings. This is not a new concept to the AF but it is something new to our bomber forces.

These are just some of the fundamental changes we have implemented in conjunction with the Nuclear Enterprise Review findings. I could list literally hundreds of individual initiatives, most of which have been completed, that cut across the nuclear mission from standing up an independent helicopter group, to significant manpower plus-ups, to new vehicles and equipment, to organizational changes to address long-standing needs. However, more importantly you should know that we are not done. I truly believe we can never return to the previous way of doing things; instead we must always look to the future and always have open minds. Since the NER reports, we have accomplished bottom-up reviews of our bomber forces, airborne launch operations, and the headquarters itself. Most recently, I tasked a team to conduct a review of our convoy operations to ensure we are accomplishing this absolutely critical mission area the best way possible. We are building a culture that embraces innovation and change.

2016 Priorities

In FY15, AFGSC took a deliberate approach with planning and executing its mission. Through the successful execution of new initiatives, AFGSC was able to earn an additional $214 million from initial distribution used to fund NC3, manpower, readiness requirements, and Nuclear Force Improvement Program initiatives. But we have more work to do and we will move forward in the context of my priorities.

My priorities are relatively simple and they inform every decision I make. They are Mission, Airmen, Families all built on Heritage and Core Values. We exist to serve the nation by providing strategic deterrence and global strike. However, without our great Airmen we could never hope to be as successful as we are. In my visits to our units, I am always humbled

by the dedication of your Global Strike warriors and their unfailing drive to do their best. I truly believe that while we may recruit Airmen, we retain families. To me that means we cannot forget the loved ones who stay behind while our Airmen deploy whether it is overseas or to a missile field. It means supporting the families who back up our Airmen who work long hours ensuring our bases are secure. It means recognizing that no matter the job an Airman is doing, we must never lose sight of the family who makes it all possible.

I mentioned that Heritage and Core Values are the foundation of the priorities I just listed. I think we learn from our history but we are inspired by our Heritage. AFGSC and the Air Force as a whole have a proud heritage. Eighth Air Force has a proud history dating back to the European theater in World War II while Twentieth Air Force did great things in the Pacific theater. Our Airmen should understand and embrace this Heritage. Lastly, our Core Values of "Integrity First, Service Before Self, and Excellence in All We Do" should underpin every decision we make each and every day. Without these values we sacrifice who we are and then nothing else matters.

Conclusion

Thank you for your continued support of Air Force Global Strike Command and our strategic deterrent and global strike missions. The President's 2015 National Security Strategy is clear: "As long as nuclear weapons exist, the United States must invest the resources necessary to maintain—without testing—a safe, secure, and effective nuclear deterrent that preserves strategic stability." Fiscal constraints, while posing planning challenges, do not alter the national security landscape or the intent of competitors and adversaries, nor do they diminish the enduring value of long range, strategic forces to our nation.

Although we account for less than one percent of the DOD budget, AFGSC forces represent two-thirds of the nation's nuclear triad and play a critical role in ensuring U.S. national security, while also providing joint commanders rapid global combat airpower. AFGSC will continue to seek innovative, cost-saving measures to ensure our weapon systems are operating as efficiently as possible. Modernization, however, is necessary to continue to meet U.S. nuclear deterrence requirements. AFGSC is operating B-52s built in the 1960s with equipment designed in the 1950s; operating ICBMs with 1960s infrastructure; and utilizing 1960s era weapon storage

areas. We cannot afford to delay modernization initiatives across the two legs of the nation's nuclear triad and the NC3 systems which connect our capabilities to the President.

I would like to take this opportunity to thank the Congress for your ongoing support of the nuclear enterprise. Your support does not go unnoticed and is absolutely critical to ensuring AFGSC provides the nuclear and conventional capabilities this Nation deserves. It is my privilege to lead this team empowered with special trust and responsibility. It is truly an honor to be a Wingman to the outstanding Airmen who make up Air Force Global Strike Command.

General Robin Rand

Gen. Robin Rand is the Commander, Air Force Global Strike Command, Barksdale Air Force Base, Louisiana. He is responsible for organizing, training, equipping all U.S. intercontinental ballistic missile and bomber forces. The command's mission is to provide strategic deterrence, global strike and combat support. The command comprises more than 31,000 professionals operating at nine wings that control the nation's inventory of Minuteman Ill intercontinental ballistic missiles, B-1, B-2 and B-52 bomber aircraft.

General Rand was commissioned in 1979 after graduating from the U.S. Air Force Academy. He's had multiple flying tours; served as an air liaison officer with the U.S. Army; and has had staff tours on the Joint Staff, Office of the Secretary of Defense, and Air Staff. General Rand's previous commands include the 36th Fighter Squadron, USAF Weapons School, 8th Fighter Wing, 56th Fighter Wing, 332nd Air Expeditionary Wing at Salad Air Base, Iraq, 12th Air Force (Air Forces Southern), and prior to this assignment, Air Education and Training Command.

General Rand is a command pilot with more than 5,080 flying hours, including more than 470 combat hours.

EDUCATION
1979 Bachelor of Science, Aviation Science, U.S. Air Force Academy, Colorado Springs, Colo.
1983 Squadron Officer School, Maxwell AFB, Ala.
1986 Air Command and Staff College, by seminar
1988 Master of Science, Aeronautical Science, Embry-Riddle Aeronautical University, Fla.
1990 U.S. Air Force Fighter Weapons Instructor Course, Nellis AFB, Nev.
1998 Master of Arts, National Security Policy, Naval War College, Newport, R.I.
2010 Joint Flag Officer Warfighter Course, Maxwell AFB, Ala.
2012 Pinnacle Course, National Defense University, Fort Lesley J. McNair, Washington, D.C.

ASSIGNMENTS
1. July 1979- July 1980, Student Pilot, undergraduate pilot training, Williams AFB, Ariz.
2. August 1980 -December 1980, T-37 Pilot, pilot instructor training, Randolph AFB, Texas
3. January 1981 -May 1984, T-37 Instructor Pilot, 82nd Flying Training Wing, Williams AFB, Ariz.
4. May 1984- July 1984, AT-38 Pilot, fighter lead-in training, Holloman AFB, N.M.
5. August 1984- January 1985, F-16 Pilot, F-16 training, 63rd Tactical Fighter Squadron, MacDill AFB, Fla.
6. February 1985- December 1986, F-16 Pilot, 612th Tactical Fighter Squadron, Torrejon AB, Spain
7. December 1986- June 1988, Air Liaison Officer, 3rd Brigade, 1st Armor Division, Bamberg, West Germany
8. July 1988- October 1988, F-16 Pilot, F-16 training, 311th Tactical Fighter Squadron, Luke AFB, Ariz.

General Oct.10, 2013

(Current as of November 2015)

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE

STATEMENT

OF

VICE ADMIRAL TERRY BENEDICT, USN

DIRECTOR, STRATEGIC SYSTEMS PROGRAMS

BEFORE THE

SUBCOMMITTEE ON STRATEGIC FORCES

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

FISCAL YEAR 2017 BUDGET REQUEST FOR NUCLEAR FORCES

02 MARCH 2016

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE

Introduction

Chairman Rogers, Ranking Member Cooper, distinguished Members of the subcommittee, thank you for this opportunity to discuss the Navy's strategic programs. It is an honor to testify before you this afternoon representing the Navy's Strategic Systems Programs (SSP).

SSP's mission is to design, develop, produce, support, and ensure the safety of our Navy's sea-based strategic deterrent, the Trident II (D5) Strategic Weapons System (SWS). The men and women of SSP and our industry partners remain dedicated to supporting the mission of our Sailors on strategic deterrent patrol and our Marines, Sailors, and Coast Guardsmen who stand watch, ensuring the security of the weapons we are entrusted with by this nation.

The Navy provides the most survivable leg of the U.S. nuclear triad with our ballistic missile submarines (SSBNs) and the D5 SWS. The 2010 Nuclear Posture Review reinforced the importance of SSBNs and the Submarine Launched Ballistic Missiles (SLBMs). Critically, SLBMs will comprise a significant majority of the nation's operationally deployed nuclear warheads. The Chief of Naval Operations (CNO) and Vice Chief of Naval Operations continue to reiterate the Navy's number one priority is to maintain a credible, modern, and survivable sea-based strategic deterrent. Maintaining our Nation's capability in this key mission area includes the proper funding of the OHIO Replacement Program – along with the propulsion and the SWS –as the "The Navy's #1 acquisition program."

Ensuring sustainment of the sea-based strategic deterrent capability is a vital national requirement today and into the foreseeable future. Our PB-17 budget request provides required funding to support the program of record in fiscal year (FY) 2017 for the D5 SWS. To sustain this capability, I am focusing on my top priorities: Nuclear Weapons Safety and Security; the D5 SWS Life Extension Program; the OHIO Replacement Program; the Solid Rocket Motor (SRM) Industrial Base; the implementation of the Nuclear Enterprise Review recommendations; the newly codified

Navy Nuclear Weapons Regulatory responsibility; the implementation and compliance associated with the New START Treaty; and Collaboration with the Air Force.

Nuclear Weapons Safety and Security

The first priority, and the most important, is the safety and security of the Navy's nuclear weapons. Accordingly, Navy leadership delegated and defined SSP's role as the program manager and technical authority for the Navy's nuclear weapons and nuclear weapons security.

At its most basic level, this priority is the physical security of one of our nation's most valuable assets. Our Marines and Navy Masters at Arms provide an effective and integrated elite security force at our two Strategic Weapons Facilities and Waterfront Restricted Areas in Kings Bay, Georgia and Bangor, Washington. U.S. Coast Guard Maritime Force Protection Units have been commissioned at both facilities to protect our submarines as they transit to and from their dive points. These Coast Guardsmen and the vessels they man provide a security umbrella for our OHIO Class submarines. Together, the Navy, Marine Corps, and Coast Guard team form the foundation of our Nuclear Weapons Security Program while headquarters staff ensures that nuclear weapons capable activities continuously meet or exceed security, safety, and compliance standards.

SSP's efforts to sustain the safety and improve the security of national assets continue at all levels of the organization. The Navy's nuclear weapons enterprise maintains a culture of self-assessment in order to sustain safety and security. This is accomplished through biannual assessments by SSP headquarters staff, periodic technical evaluations, formal inspections, and continuous on-site monitoring and reporting at the Strategic Weapons Facilities. Technical evaluations, formal inspections, and on-site monitoring at the Strategic Weapons Facilities provide periodic and day-to-day assessment and oversight. Biannual assessments evaluate the ability of the organization to self-assess the execution of the assigned strategic weapons mission and compliance requirements. The results of these biannual assessments are critically and independently

reviewed through the Navy Nuclear Weapons Assessment and provided to the Secretary of the Navy and the CNO.

We also strive to maintain a culture of excellence to achieve the highest standards of performance and integrity for personnel supporting the strategic deterrent mission. We continue to focus on the custody and accountability of the nuclear assets entrusted to the Navy. SSP's number one priority is to maintain a safe, secure, and effective strategic deterrent.

D5 Life Extension Program

The next priority is SSP's life extension effort to ensure the D5 SWS remains an effective and reliable sea-based deterrent. The D5 SWS continues to demonstrate itself as a credible deterrent and exceeds operational system requirements established over 30 years ago. The submarine leg of the U.S. strategic deterrent is ready, credible, and effective; thereby assuring our allies and partners and deterring potential adversaries. However, we must remain vigilant about age-related issues to ensure a continued high level of reliability.

The D5 SWS has been deployed on our OHIO Class ballistic missile submarines for 25 years and is planned for a service life of 50 years. This is well beyond its original design life of 25 years and more than double the historical service life of any previous sea-based strategic deterrent system. As a result, effort will be required to sustain a credible SWS from now until the end of the current OHIO Class SSBN in the 2040s; as well as the end of the service life of the OHIO Replacement SSBN in the 2080s.

The Navy is proactively taking steps to address aging and technology obsolescence. SSP is extending the life of the D5 SWS to match the OHIO Class submarine service life and to serve as the initial baseline mission payload for the OHIO Replacement submarine platform. This is being accomplished through an update to all the D5 SWS subsystems: launcher, navigation, fire control, guidance, missile, and reentry. Our flight hardware - missile and guidance - life extension efforts are designed to meet the same form, fit, and function of the original system to keep the deployed system as one homogeneous

population, control costs, and sustain the demonstrated performance of the system. We will remain in continuous production of large energetic components, such as solid rocket motors and Post Boost Control System Gas Generators, while continuing an age management replacement effort for missile small ordnance and control components. We also started initial planning for when a follow-on missile to D5 will be needed. These efforts will provide the Navy with the missiles and guidance systems we need to meet operational requirements through the introduction and deployment of the OHIO Replacement SSBNs through the 2080s.

While budgetary pressures and impacts of sequestration resulted in some deferred or delayed efforts, strategic deterrence remains the Navy's highest priority. As such, the Navy is committed to minimizing, to the maximum extent possible, impacts to this program in order to meet strategic requirements.

One impacted effort is the change to our flight test program in FY 2016. In accordance with Strategic Command (STRATCOM) requirements, the Navy is required to flight test a minimum of four D5 missiles per year in a tactically-representative environment. The purpose of flight testing is to detect any change in reliability or accuracy. The FY 2016 budget reflects a reduction of one planned flight test for affordability. The Navy coordinated with STRATCOM to determine that this temporary reduction is manageable in the short-term, contingent upon our plan to ramp back up to four flight tests per year later in the Future Years Defense Program (FYDP). A prolonged reduction beyond what is planned in FY 2016 would impact our ability to detect changes in reliability and accuracy of an aging system with the required degree of statistical confidence to meet STRATCOM requirements. The FY 2017 budget request reflects the return to four flight tests per year.

Despite budgetary pressures, the Navy's D5 life extension program remains on track. In November 2015, the USS KENTUCKY (SSBN 737) successfully conducted its Demonstration and Shakedown Operation (DASO 26) by launching two missiles. These missiles successfully integrated the D5 Life Extension (D5 LE) Flight Controls

Electronics Assembly and Interlocks Suite with the D5 LE Guidance System. The D5 LE missiles will be available for initial fleet introduction in FY 2017.

Another major step to ensure the continued sustainment of our SWS is the SSP Shipboard Integration (SSI) Programs, which address obsolescence management and modernization of SWS shipboard systems through the use of open architecture design and commercial off-the-shelf hardware and software. The first increment of this update was installed on the final U.S. SSBN in April 2014. This completed installation on all fourteen U.S. SSBNs, all four UK SSBNs and all U.S. and UK land-based facilities. Installation of subsequent increments began last summer, with four installations completed to date. The SSI Program includes refreshes of shipboard electronics hardware and software upgrades. These refreshes will extend service life, improve efficiency and affordability for future maintenance of the SWS, and ensure we continue to provide the highest level of nuclear weapons safety and security for our deployed SSBNs while meeting STRATCOM requirements.

To sustain the D5 SWS, SSP is extending the life of the W76 reentry system through a refurbishment program known as the W76-1. The W76-1 refurbishment maintains the military capability of the original W76 for an additional 30 years. This program, which is being executed in partnership with the Department of Energy, National Nuclear Security Administration (NNSA), has completed over 60 percent of the planned warhead production. The Navy will continue to work with NNSA to closely monitor production and deliveries to ensure there are no operational impacts.

In addition, the Navy continues the design work to refurbish the aging electronics in the W88 reentry system. The Navy is collaborating with the Air Force to reduce costs through shared subsystems suitable for the W88/Mk5 and the W87/Mk21. Additionally, the Nuclear Weapons Council (NWC) directed the replacement of the conventional high explosive, which will support deployment of the W88/Mk5 for an additional 25 years. As directed by the NWC, we have submitted funding requests to support the initial feasibility and cost studies (Phase 6.2/6.2A) for an Interoperable Warhead (IW) to begin in 2020. The Navy believes that the NWC continues to effectively balance near-term

nuclear weapons sustainment and refurbishment priorities and the long-term stockpile strategy.

OHIO Replacement Program

The Navy's highest priority acquisition program is the OHIO Replacement Program, which replaces the existing OHIO Class submarines. The continued assurance of our sea-based strategic deterrent requires a credible SWS, as well as the development of the next class of ballistic missile submarines. The Navy is taking the necessary steps to ensure the OHIO Replacement SSBN is designed, built, delivered, and tested on time with the right capabilities at an affordable cost. The OHIO Replacement Program is fully supported in the current FYDP with incremental funding for the lead ship, and will continue to be appropriately prioritized.

The OHIO Replacement delivery schedule ensures STRATCOM operational and strategic requirements are maintained. A force size of 12 SSBNs maintains the minimum requirement of 10 operational SSBNs during mid-life overhauls and maintenance schedules. This force size was validated by the Joint Requirements Oversight Council in August 2015 and is driven by three factors: Geography, Survivability, and Target Coverage. The SSBN force must deliver survivable presence in the Pacific and Atlantic oceanic regions. Survivability is enabled by inherent platform stealth, force size, and flexible operations. Target coverage is ensured by platform location and SWS accuracy while providing the capability to hold targets at risk. A force structure below 12 SSBNs does not meet mission requirements and reduces survivability and limits flexibility to respond to an uncertain strategic future.

The OHIO Replacement acquisition strategy leverages alternative acquisition tools and cross-platform contracting to reduce schedule risk and lower costs in support of the Navy's shipbuilding programs. Recapitalizing the sea based strategic deterrent after thirty years puts fiscal pressure on the Navy's shipbuilding budgets. The Department will be looking for opportunities to work with Congress to improve the efficiency and

effectiveness of our acquisition process. to reduce total OR acquisition costs and shorten construction schedules for a program that has no additional margin for delay.

To lower development costs and leverage the proven reliability of the weapon system, the OHIO Replacement SSBN will enter service with the D5 SWS and D5 LE missiles onboard. These D5 LE missiles will be shared with the OHIO Class submarines until their retirement. Maintaining one SWS during the transition to the OHIO Class Replacement is beneficial from a cost, performance, and risk reduction standpoint. A program to support long-term SWS requirements is planned for the future to support the OHIO Class Replacement SSBN through its entire service life.

The Navy continues to leverage the VIRGINIA Class program to implement lessons-learned and ensure the OHIO Replacement Program pursues affordability initiatives across design, construction, and life cycle operations and support. The SSBN design team recently achieved several critical decisions and milestones. In December 2015, the Navy released the Request for Proposals for the final detailed design contract. Maintaining the pace of design and submarine industrial capability is critical to the continued success of our sea-based strategic deterrent now and well into the 2080s.

A critical component of the OHIO Replacement Program is the development of a Common Missile Compartment (CMC) that will support D5 deployment on both the OHIO Class Replacement and the successor to the UK VANGUARD Class. In 2015 the Program began construction of missile tubes to support building the U.S. prototype Quad-pack module, the Strategic Weapons System – Ashore (SWS Ashore) test site, and the UK's first SSBN. The joint CMC effort is shifting from design to construction, supporting production in both U.S. and UK build yards. Therefore, delivery of the CMC design and Missile Tubes to the UK remains on the critical path for UK Successor delivery. Any delay to the common missile compartment effort has the potential to impact the UK's ability to maintain a continuous at sea deterrent posture.

To manage and mitigate technical risk to both the U.S. and UK programs, SSP is leading the development of SWS Ashore integration test site at Cape Canaveral, Florida.

This is a joint effort with the Navy and the State of Florida investing in the re-development of a POLARIS site to conduct integration testing and verification for OHIO Replacement and UK Successor programs. Refurbishment of the POLARIS site and construction of the infrastructure is proceeding at a rapid pace, including installation of test bay 1 missile tubes and superstructure and several major support systems. Trident II (D5), OHIO Class, and OHIO Replacement new design hardware will be co-located and integrated to prove the successful re-host and redeployment of the D5 SWS on the new submarines.

SSP constructed a surface launch facility at the Naval Air Station, China Lake, California to mitigate the risk in the restart of launch system production. This facility will prove that the launcher industrial base can replicate the performance of the OHIO Class D5 launch system. We will be launching the refurbished D5 test shapes used in the 1980s starting in FY 2017. Launch performance is a critical factor we must understand at the systems level to ensure we maintain high reliability as we transition the weapon system to the next class of SSBNs.

The U.S. and the UK have maintained a shared commitment to nuclear deterrence through the Polaris Sales Agreement (PSA) since April 1963. As the Director of SSP, I am the U.S. Project Officer for the PSA. Our programs are tightly coupled both programmatically and technically to ensure we are providing the most cost effective and technically capable nuclear strategic deterrent for both nations. Last year marked the 52nd anniversary of this agreement, and I am pleased to report that our longstanding partnership with the UK remains strong. The U.S. will continue to maintain its strong strategic relationship with the UK as we execute our D5 LE Program and develop the common missile compartment.

Our continued stewardship of the D5 SWS is necessary to ensure a credible and reliable SWS is deployed today on our OHIO Class submarines, the UK VANGUARD Class, as well as in the future on respective follow-on platforms. This is of particular importance given the proportion of our nuclear forces that will be deployed on the sea-based leg of the Triad under the New START Treaty. The OHIO Replacement will be a

strategic national asset with endurance and stealth, enabling the Navy to provide continuous, uninterrupted strategic deterrence well into the 2080s.

Solid Rocket Motor (SRM) Industrial Base

The defense and aerospace industrial base – in particular the solid rocket motor industry – is another important priority. I remain concerned with the decline in demand for solid rocket motors. While the Navy is maintaining a continuous production capability at a minimum sustaining rate of twelve rocket motor sets per year, the demand from both NASA and Air Force has precipitously declined. Not only did this decline result in higher costs for the Navy, as practically a sole customer, it also put an entire specialized industry at risk of extinction. To allow this puts our national security at risk. The Navy cannot afford to singularly carry this cost, nor can our nation afford to lose this capability. While the efforts of our industry partners and others have created short-term cost relief, the long-term support of the solid rocket motor industry and maintenance of critical skills remains an issue that must be addressed at the National level. At SSP, we will continue to work with our industry partners, DoD, senior NASA leadership, Air Force, and Congress to do everything we can preserve this vital national security industry asset.

Nuclear Enterprise Review

The Navy remains committed to addressing and implementing recommendations of the 2014 Nuclear Enterprise Review (NER). The Program and Budget Review for the FY 2017 budget formulation preserves all current enhancements to the Nuclear Enterprise, focusing significantly on the recapitalization, sustainment, and modernization of our nuclear deterrence systems and infrastructure. The NER provided the Navy a thorough and unbiased look at our nuclear forces. Overall, the report found that the nuclear enterprise is safe, secure, and effective today but it also found evidence of systemic problems that, if not addressed, could undermine the safety, security, and effectiveness of elements of the force in the future. Fortunately, the Navy's internal Nuclear Weapons Assessment and the SSP Comprehensive Self-Assessment identified

most of the issues underscored during the NER. In fact, the report validated numerous efforts already underway.

The Navy continues to address the more than 68 recommendations with Navy equity contained in the report. Significant action has been taken to implement each recommendation, focusing on the following areas: oversight, investment, and personnel and training improvements. With respect to oversight, the Navy is clarifying the nuclear deterrent enterprise leadership structure and reducing administrative burdens imposed on the forces. The Nuclear Deterrent Enterprise Review Group (NDERG), formed and led by the Secretary of Defense will continue to provide regular oversight of the nuclear enterprise. The Navy Nuclear Deterrent Mission Oversight Council is the Navy's mechanism to ensure the NDERG recommendations and guidance are properly implemented and that investments achieve the intended effect.

Regarding training and personnel, the Navy is planning a significant investment to build a margin in the deterrence force and clear the SSBN maintenance backlog. The Navy is matching the right responsibilities with the right leaders in order to address the recommendations involving long-term cultural and organizational challenges. There will be an emphasis on the importance of the deterrence mission through updated vision statements, revised campaign plans, and methods to eliminate obstacles to enhance moral conduct and relieve the pressures on Sailors, training, and work-life balance.

The Navy is developing a 20 year investment plan to ensure the continued reliability of critical infrastructure at these facilities to support nuclear weapons movement and operations. While the Navy makes significant progress through actions taken to date, we recognize much work remains to be accomplished. The Navy is confident we have the right emphasis, oversight, and processes in place to maintain a credible, modern, and safe sea-based deterrent.

Navy Nuclear Weapons Regulatory Responsibility

As a result of the Nuclear Enterprise Review, the Navy implemented a centralized regulatory authority for nuclear force readiness. As the Director of Strategic Systems Programs, I have accountability, responsibility and authority to serve as the single Flag Officer to monitor performance and conduct end-to-end assessment of the Navy Nuclear Deterrence Mission (NNDM) elements. These responsibilities are defined in SECNAVINST 8120.1B and OPNAVINSTs 8120.1 and 8120.2. Nine Echelon 2 level commands directly contribute to the NNDM: US Fleet Forces Command (USFLTFORCOM), US Pacific Fleet (PACFLT), Fleet Cyber Command (USFLTCYBERCOM), Navy Supply Systems Command (NAVSUPSYSCOM), Naval Sea Systems Command (NAVSEASYSCOM), Chief of Naval Personnel (CNP), Bureau of Medicine and Surgery (BUMED), Commander, Navy Installations Command (CNIC), and SSP.

I am the Navy Nuclear Deterrence Mission (NNDM) regulatory authority responsible for assessing and reporting issues to the Navy Nuclear Deterrence Mission Council and the CNO. SSP is tasked with developing, coordinating, and implementing policies approved by the CNO; conducting end-to-end assessments of the Navy's nuclear weapons and nuclear weapons systems and personnel, including Nuclear Command, Control, and Communications (NC3), for safe, reliable, and effective execution of the NNDM.

SSP is engaged with the Echelon 2 commands defined above to understand current reporting and assessment processes and to define the NNDM regulatory assessment policy. The next in-progress review with CNO, in February 2016, will provide an update on the significant progress made to date by the participating commands, to include: reporting and engagement strategies with the NNDM component commands, development of archival and analytical tools to assist in performing end-to-end assessments, and presenting the initial component self-assessments and an independent assessment of the Echelon 2 reporting. Further, the upcoming 2016 Biennial Navy Nuclear Weapons Assessment will review the implementation and execution of the NNDM Regulator processes to date to ensure we are providing the necessary rigor and discipline to this endeavor.

New START Treaty

The Navy remains in compliance with the obligations of the New START Treaty. In FY 2015 the Navy started the conversion of four launchers on each SSBN, removing the capability to employ a D5 ballistic missile. The Navy is on schedule to complete the conversions on all fourteen SSBNs and meet the aggregate number of 280 launchers by 2018, as set by the Treaty. The Navy is aligning these efforts with the existing OHIO SSBN operational schedule to minimize impact to the Fleet.

Our Navy facilities continue to support Type One Inspections, which confirm the number and type of deployed and non-deployed strategic offensive arms and the number of reentry vehicles on a deployed SLBM. After the completion of the launcher conversions, SSBNs remain pier side and available for a Type Two Inspection for up to 35 days to confirm the results. The Navy remains in compliance by providing notifications in an accurate and timely manner for conversions and other reportable activities such as missile on-loads and offloads, flight tests, and the departures, arrivals, and elimination of first stage rocket motors. The Navy continues to meet the obligations of the New START Treaty due to the dedication and professionalism of our military, civilians, and industry partners.

Collaboration with the Air Force

The final priority is strategic collaboration between the Services. The Navy and the Air Force are both addressing the challenges of sustaining aging strategic weapon systems and are collaboratively working to ensure these capabilities are retained in the long-term to meet mission requirements. In accordance with a July 2015 tasking letter from the Air Force and Navy Service Acquisition Executives (SAEs), and the Commander, US Strategic Command, the Navy and Air Force conducted an assessment of the options for commonality for the two ballistic missile legs of the Triad. The direction to SSP and PEO/SS was to determine whether increasing the commonality between the Ground Based Strategic Deterrent (GBSD) and D5LE could improve affordability while ensuring a safe, secure, effective, and credible nuclear deterrent. The

assessment considered commonality across a wide spectrum, from full system level commonality to technology sharing for independent programs.

Although initial results of the assessment ruled out the possible use of a standard common weapons system by both the Air Force and Navy, a number of common components and technologies remain viable. The use of these candidates offer significant potential benefits in terms of reducing costs and technical and schedule risks to the GBSD and SLBM programs. Commonality provides the Navy and Air Force opportunities to eliminate redundant efforts, leverage economies of scale, and sustain shared critical skills and capabilities needed by securing the industrial base. Proactive leadership within the services and the Office of the Secretary of Defense is required to ensure the opportunities identified are not lost in execution.

Each leg of the Triad provides unique attributes. Furthermore, a sustained and ready Triad provides an effective hedge, allowing the nation to shift to another leg, if necessary, due to unforeseen technical problems or vulnerabilities. For this reason, the Department is focused on cooperative efforts that maintain affordability and reduces risk to both services while retaining essential diversity where needed to ensure a credible and reliable deterrent. Many of the industries and required engineering skills sets are unique to strategic systems. Key to SSP's historical success has been our technical applications programs, which in the past provided a research and development foundation. We will need to resume these critical efforts as we evaluate maintaining this strategic capability until the 2080s to match the full service life of the OHIO Replacement submarine.

Conclusion

SSP continues to maintain a safe, secure, and effective strategic deterrent and focus on the custody and accountability of the nuclear assets entrusted to the Navy. Our PB-17 budget request ensures that we will sustain this capability in FY 2017. However, we must remain vigilant about unforeseen age-related issues to ensure the high reliability required of our SWS. SSP must maintain the engineering support and critical skills of our industry and government team to address any future challenges with the current

system as well as prepare for the future of the program. Our nation's sea-based deterrent has been a critical component of our national security since the 1950s and must continue to assure our allies and deter potential adversaries well into the future. I am privileged to represent this unique organization as we work to serve the best interests of our great Nation.

Vice Admiral Terry J. Benedict
Director, Strategic Systems Programs

Vice Adm. Benedict is assigned as director of the Navy's Strategic Systems Programs (SSP). His previous flag assignment was as program executive officer for Integrated Warfare Systems, Office of the Assistant Secretary of the Navy (Research, Development and Acquisition) in Washington, D.C.

Benedict transferred to the engineering duty officer community in 1985 then reported to SSP in 1988 as a lieutenant. He has had nine previous billets within SSP in numerous technical branches including a field tour at the Missile Manufacturing Facility and as the deputy director/technical director.

Benedict also had three tours in Naval Sea Systems Command as a systems engineer, as the executive assistant to the commander and Program Executive Office Integrated Warfare Systems (PEO IWS).

He graduated from the U.S. Naval Academy in 1982 with a bachelor's degree and holds a Master of Science in engineering science and a Master of Business Administration. He is a graduate of the Advanced Program Management Course at the Defense Acquisition University, the Executive Leadership Course at Carnegie Mellon, and is a certified project management professional.

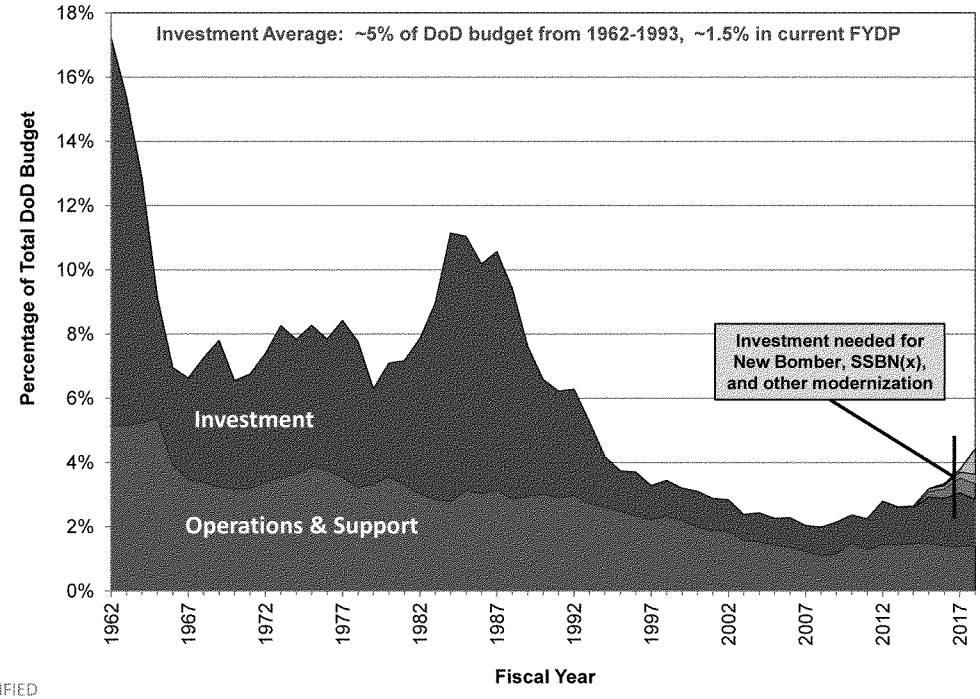
Benedict assumed command as the 13th director of Strategic Systems Programs May 7, 2010 and was promoted to Vice Admiral May, 28 2013.

Updated: 11 May 2015

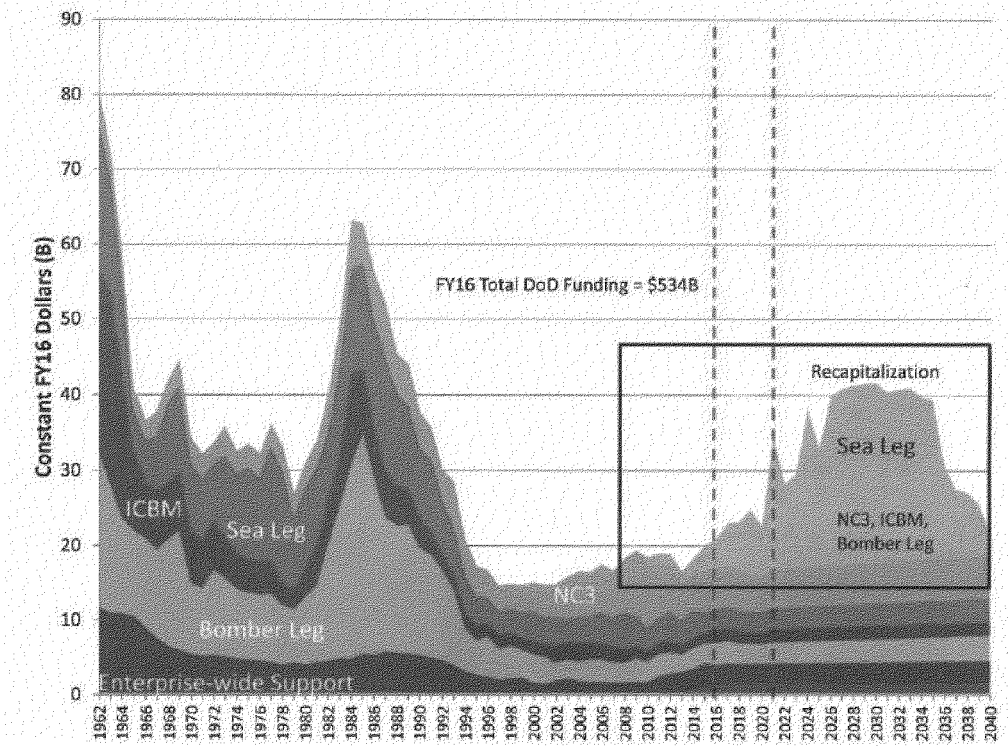
DOCUMENTS SUBMITTED FOR THE RECORD

MARCH 2, 2016

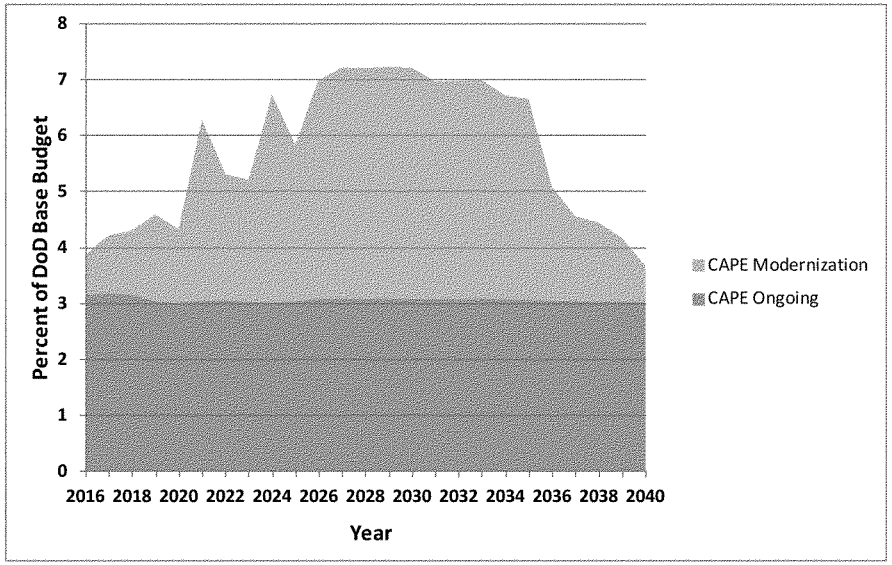
Funding of DoD Nuclear Capabilities Relative to DoD Budget



The Coming Nuclear Enterprise Recapitalization

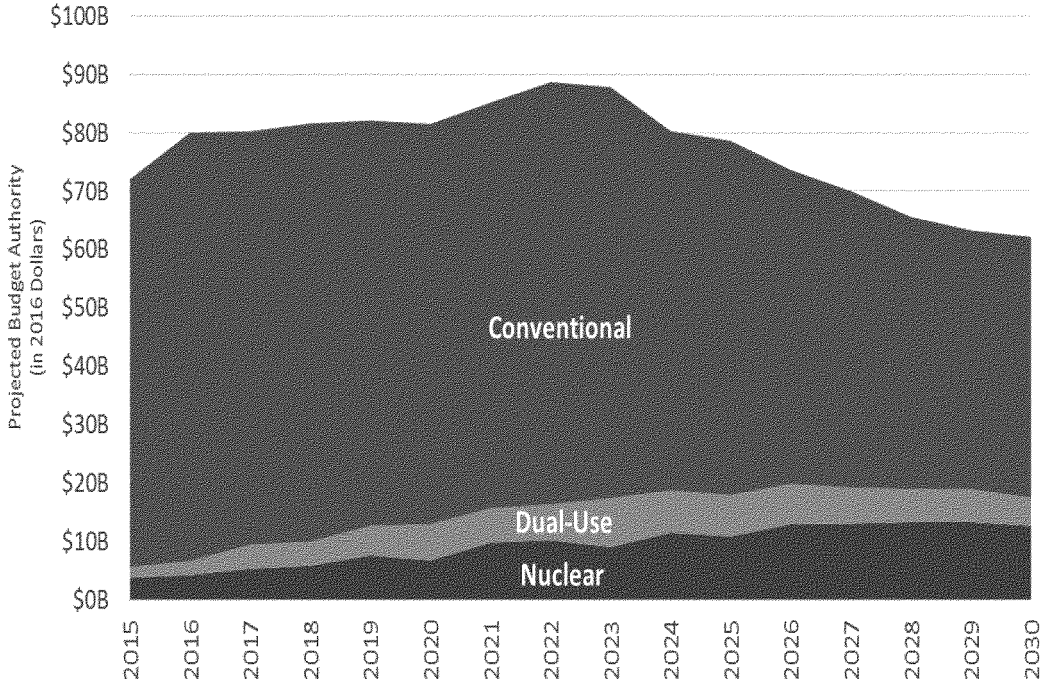


CAPE nuke cost estimate as % of DoD Base



Red shaded area combines “Sea Leg” and “NC3, Bomber, ICBM” modernization
Blue shaded area is remainder of nuclear costs
Denominator is projected DoD base budget (assuming 0.5% real growth per year after 2030)

Nuclear vs. Conventional MDAP Bow



Source: Todd Harrison, CSIS

1 March 2016 – HASC staff

Quotes on prioritization of nuclear deterrence and modernization

Todd Harrison at CSIS put the central question on nuclear modernization succinctly in his most recent report[1] at CSIS: "the issue is not affordability—rather, it is a matter of prioritization. Should nuclear forces, and by extension their modernization programs, be given higher priority in the budget than other forces? This question is ultimately a matter of national security strategy and not one that can be answered by cost assessments alone."

So how do senior Obama Administration and military leaders answer this question of prioritization?

- Deputy Secretary of Defense Ash Carter in remarks at Minot, ND, in November 2012:
  - "The nuclear mission is the bedrock of our security. It is what stands in the background and looms over every action this country takes on the world stage. It is the foundation for everything we do."

- Secretary of Defense Chuck Hagel's November 2014 Message to the Force:
  - "Our nuclear deterrent plays a critical role in assuring U.S. national security, and it is DoD's highest priority mission. No other capability we have is more important…"
  - "For too long, we have overlooked career paths, compensation, infrastructure, and small-unit leadership that are mission-critical in the nuclear force. That is changing. It will continue to change. What you do every day is critically important to America's national security."
  - "Despite sometimes insufficient resources and manpower, our airmen, sailors, and Marines have stretched themselves to maintain, guard, and operate the nuclear enterprise every day. They deserve our thanks."
  - "To all these individuals and their colleagues across our nuclear enterprise: You are the heirs to a proud legacy, and it is because of you that our nuclear enterprise is safe, secure, and effective today. We will expect excellence, and the President will expect excellence, because the American people expect excellence. In turn, we will ensure you have the resources and support you need - and we will always be unspeakably grateful to you for carrying out this vital mission."

- Deputy Secretary of Defense Bob Work at a HASC hearing in June 2015:
  - "So, anybody who looks at the way that the international environment is moving, especially the way that Russia has been describing its nuclear deterrent posture, has to say: Nuclear weapons remain the most important mission we have; this is absolutely critical. We can perform deterrence with a much smaller force than we did in the Cold War. That is true. And that is reflected in the cost of the replacement. It will—the peak of the replacement will be nowhere near the peak of the replacement costs that occurred in the 1960s and the 1980s. So it is a smaller force. It performs an extremely important mission, no more important mission. And I would just say, just look at the international environment. This is not a time for us to say that nuclear weapons are useless."
  - "So given the importance of nuclear weapons, as well as this volatile 21st century national security environment, the President has directed that we maintain a safe, secure and reliable triad of strategic nuclear delivery systems, while adjusting the force levels to the New START treaty. This is the highest priority for the Department of Defense. We have developed a plan to transition our aging systems. As the chairman said, they all are becoming—reaching the time where they will age out. Carrying out this plan is going to be a very expensive proposition and we recognize that. It is projected to cost DOD an average of $18 billion a year from 2021 through 2035 in fiscal year 2016 dollars. Without additional funding dedicated to strategic force modernization, sustaining this level of spending will require very, very hard choices and will impact the other parts of the

[1] http://csis.org/publication/defense-modernization-plans-through-2020s

defense portfolio, particularly our conventional mission capability. Now, this modernization we have delayed and we cannot do further any delays without putting the safety, security, and effectiveness of our forces at risk. So the choice that we are facing, quite frankly, Mr. Chairman and members, is that keeping the existing force or modernizing the force, the choice right now is modernizing or losing deterrent capability in the 2020s and 2030s. That's the stark choice that we are faced with."

- VCJCS Admiral Sandy Winnefeld at a HASC hearing in June 2015:
  - "The fact is there is no slack left in the system. We will need stable, long-term funding to recapitalize this most important element of what we do. We can no longer adjust priorities inside the nuclear portfolio to make things work, to string it along. That implies that absent some other form of relief, because this is our highest security interest, we are going to have to reach into the other things we do to protect other national security interests. That is going to make many people, both inside and outside DOD, unhappy."

- Secretary of Defense Ash Carter at AFA conference in September 2015:
  - "The nuclear deterrent is a must-have, you really need to start there…it is the foundation. It's the bedrock and it needs to remain healthy and we all know that we need to make additional investments."
  - "I think we ought to face that question and stick to the central commitment of having a nuclear deterrent. That's the fundamental principle."

- Secretary of Defense Ash Carter at a HASC hearing in December 2015:
  - QUESTION: "Do you share Secretary Hagel's view as well as Bob Work's and Sandy Winnefeld's that nuclear deterrence is the highest priority for the DOD? And if so, why?"
  - CARTER: "I sure do. And I -- actually, on Thanksgiving, was calling service members around the world. And one of the folks I called was a Mr. Lear (ph), who is spending Christmas in a silo in North Dakota. And I told him exactly that. I said what you're doing is the single most important thing in the U.S. military. It's not in the news every day. And God help us if it is. But it is the bedrock of our security and, in the final analysis, that it is the ultimate undergirder of American security. And that's why having an effective, modern, safe, secure nuclear deterrent is absolutely critical."

- STRATCOM commander Admiral Cecil Haney at CSIS event in January 2016:
  - "Delaying development and fielding of any of these programs would unacceptably increase risk to our nation's strategic deterrence capability. Equally if not more important, delaying would directly affect our credibility and ability to deter and assure. We are out of time: sustainment is a must, recapitalization is a requirement…Our budget has a deterrent value of its own and reflects our nation's commitment to our deterrence strategy…our adversaries pay close attention to [whether] we backup our words with resources…Our choice is not between keeping the current forces or replacing them, rather the choice is between replacing those forces or risk not having them at all."

The unequivocal answer to Harrison's question from the Obama Administration, senior military leaders, and senior leaders in Congress is this: nuclear deterrence is DOD's highest priority mission and it will therefore be given highest priority in budgets and funding. Finding that funding in the 2020s and 2030s will be challenging (particularly if we don't see relief to the defense topline budget level), but we will get it done because nuclear deterrence is too important.

WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING

MARCH 2, 2016

RESPONSES TO QUESTIONS SUBMITTED BY MR. COFFMAN

General RAND. Missile warning and NC3 are critical capabilities for a credible and effective nuclear deterrent and are instrumental to ensuring the survivability and execution of our nuclear forces.

Missile Warning and NC3 have and will continue to receive attention. The Air Force has increased funding in recent years to overcome capability shortfalls, to include an additional $1B in the FY17 president's budget. These initiatives include hardening Ballistic Missile Early Warning Systems, increasing survivability of communications for bombers and planning capabilities, and initiation of recapitalization efforts. The Air Force works very closely with Combatant Commands to forecast threat trends and evolving requirements.

In August 2015 the Air Force designated the AF provisioned portion of NC3 a weapon system and made AFGSC Lead Command for AF-owned NC3. We also established a Program Executive Office (PEO) dedicated to NC3. These collective actions provide the organizations, processes and resources to most effectively acquire, modernize, and sustain the Air Force provisioned portion of NC3 and affiliated missile warning capabilities. I'm also a member of the Council on Oversight of the National Leadership Command, Control and Communications System. This council, established by U.S. Code, is chaired at the Under Secreatary level, and we are paying significant attention to our NC3 systems. [See page 13.]

General RAND. The Air Force continues to make sizeable investments in the missile warning system to continue this critical capability.

On the space side of the missile warning architecture, the Air Force has programmed over $4.6B in the future years defense plan (FYDP) to continue the Space Based Infrared System (SBIRS) as well as initiate in FY18 the next iteration that is called SBIRS Follow-On. We also have funded the full complement of the upgraded SBIRS Mobile Ground Stations that are a key element of the nuclear command and control system with an expected delivery date of the first three units in early FY18.

On the ground side of the missile warning architecture, three ground-based phased array radars (Beale, Thule & Fylingdales) have received the Upgraded Early Warning Radar (UEWR) modification funded by Missile Defense Agency (MDA) to conduct both the missile warning and MDA missile defense missions. Currently, the Clear ground-based radar is in the process of receiving the MDA funded UEWR modification and Cape Cod ground-based radar will begin its USAF funded UEWR modification after the Clear project has been completed. The Perimeter Acquisition Radar Attack Characterization System (PARCS) radar is not slated for the UEWR modification, but has been allocated sustainment funding in the FY17 President's Budget Request (PBR). [See page 13.]

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

MARCH 2, 2016

QUESTIONS SUBMITTED BY MR. ROGERS

Mr. ROGERS. Secretary Scher, we discussed this in the hearing but please elaborate on your insight into what NATO is doing in the nuclear arena to adapt to the increased threat from Russia? What do you think are some key deliverables that NATO might have regarding the Alliance's nuclear posture around the Warsaw Summit in July? Where do you see the Alliance going? What can Congress do to help?

Mr. SCHER. At the Wales Summit, NATO Heads of State and Government recognized the changed security environment in Europe and took a first step towards strengthening the Alliance's deterrence and defense posture by approving the Readiness Action Plan (RAP). The RAP was a direct response to the challenges posed by Russia, but it is not enough. The Alliance continues to renew its emphasis on deterrence and collective defense in light of the changed security environment along NATO's borders, and among many other efforts is considering adjustments to ensure NATO's nuclear deterrence capabilities remain credible, flexible, resilient, and tailored to the specific threats that it faces—an approach that NATO has followed for decades. While the alliance continues to discuss how best to do this, continuing congressional support for the Dual-Capable Aircraft mission, the B61–12 Life-Extension Program, and the overall nuclear sustainment and modernization program is critical for our ability the continue to effectively extend nuclear deterrence to our NATO Allies.

Mr. ROGERS. Secretary Scher, please help us make sure we're clear on the Obama administration's position on this matter: If top-line budget relief is not provided, does the administration believe it should: (1) make cuts within the nuclear portfolio; or (2) make cuts, even if quite painful, in the conventional portfolio to keep the nuclear portfolio whole?

Mr. SCHER. Nuclear deterrence is the highest priority of the Department and we are committed to ensuring a safe, secure, and effective arsenal. This requires adequate and consistent funding of modernization programs that cannot be delayed further without putting the safety, security, and effectiveness of our nuclear forces at significant and unacceptable risk.

The Administration's nuclear sustainment and modernization plan is necessary, and it is affordable if prioritized appropriately by the Department of Defense, Congress, and the Nation. Although we do not know whether in future years this will require top-line increases, compensating cuts, or some combination of the two, we must ensure an approach that meets all of our vital security needs.

Mr. ROGERS. Secretary Scher, please describe in detail how, during its 7-year tenure, the Obama administration has reviewed and reassessed the need for the triad. Has the administration conducted detailed analysis of eliminating one or more legs of the triad or significantly altering U.S. nuclear posture? What were the results of those efforts? Why has the administration continued to propose strong support for—and recapitalization of—the nuclear triad?

Mr. SCHER. In the lead up to the 2010 Nuclear Posture Review (NPR), DOD conducted a series of separate analytic studies looking at the appropriate size, composition, and posture of U.S. nuclear forces. These studies influenced the NPR and the 2010 "Section 1251 Report to Congress" on the DOD-preferred force structure under the New START Treaty. They used 10 attributes and 45 metrics to evaluate a range of force structure options in terms of their ability to support policy goals. The study analytics were applied to various Monads, Dyads, and Triads at numerous force levels. Taken together, these studies lead to the conclusion that retaining a nuclear Triad at negotiated lower force levels is the best way to sustain effective nuclear deterrence of potential adversaries and assurance of allies.

Mr. ROGERS. Secretary Scher, as a policy matter, what should an adversary know if it thinks about attacking our missile warning or nuclear command and control satellites or ground links? Is that adversary crossing a redline by taking out our protected communications and eyes that are designed to maintain situational awareness during a nuclear conflict? These capabilities are special, right? What's our declaratory posture on them?

Mr. SCHER. Adversaries should understand that any attack against the United States, including attacks on critical U.S. military systems would result in a U.S. response that would impose costs that far outweigh the benefits they hope to achieve. The systems you describe are critical to our deterrent and defense posture; attempts to degrade our ability to detect or respond to nuclear attack would be particularly dangerous for them and not worth the associated risk.

Mr. ROGERS. Secretary Scher, do you think that NATO allies should be asked to share part of the costs of the B61 Life Extension Program (LEP)? Would having the NATO allies pay for part of the LEP be contrary to the Nuclear Nonproliferation Treaty? Is it a good or bad idea?

Mr. SCHER. It is not in the best interest of the United States to ask NATO Allies to provide direct funding of the B61 Life Extension Program (LEP). The B61 LEP is not a NATO-only program. It is also a key element of our strategic Triad and our extended deterrence posture in Asia. U.S.-only funding ensures we retain total control of design and capability decisions, including ensuring desired characteristics for both bomber and Dual-Capable Aircraft (DCA) missions. Allied funding would almost certainly create perception problems regarding U.S. and Allied compliance with the Nuclear Nonproliferation Treaty (NPT). Any sharing of nuclear weapons design information with non-nuclear States associated with such funding would violate the Atomic Energy Act and U.S. obligations under the NPT, and would not be in the best interest of the United States. Demanding direct Allied funding of the B–61 LEP would put NATO Allies in a difficult political position, possibly putting at risk the extensive burden sharing already in place.

Mr. ROGERS. Dr. Hopkins, would extending the life of Minuteman III indefinitely out into the future be cheaper than buying a new system under GBSD? Specifically, what components of the missile and ground infrastructure would need to be upgraded and why isn't it cheaper to continue life-extending those existing subsystems and components? How does the aging of the missile motors play into the cost equation? Please provide us detailed unclassified information.

Dr. HOPKINS. Like any system, the Minuteman III cannot be life extended indefinitely. As General Rand, Commander, Air Force Global Strike Command, testified, "the Minuteman III with each year becomes more and more obsolete and we are concerned that if we don't replace it . . . we will not be able to provide the capabilities that are needed."

While we may be able to complete some life extension activities to arrest the age-out of certain vital components—booster stacks and guidance systems being the most critical—these would be only a temporary solution that maintains a very old and less capable system while almost certainly not providing any appreciable savings. Life extending the Minuteman III would ultimately be more expensive in the long-term, and will not improve the system enough to meet warfighter needs.

I understand the Air Force is in the process of compiling a formal report to Congress on examining the costs associated with extending the life of the Minuteman III compared to the costs associated with procuring a new ground based strategic deterrent, and expects to deliver this report by June 1, 2016.

Mr. ROGERS. Dr. Hopkins, please help us make sure we're clear on the Obama administration's position on this matter: If top-line budget relief is not provided, does the administration believe it should: (1) make cuts within the nuclear portfolio; or (2) make cuts, even if quite painful, in the conventional portfolio to keep the nuclear portfolio whole?

Dr. HOPKINS. Nuclear deterrence is the highest priority of the Department and we are committed to ensuring a safe, secure, and effective nuclear arsenal. This requires adequate and consistent funding of modernization programs that cannot be delayed further without putting the safety, security, and effectiveness of our nuclear forces at significant and unacceptable risk. The Administration's nuclear sustainment and modernization plan is necessary, and it is affordable if prioritized appropriately by the Department of Defense, Congress, and the Nation. It is not clear whether in future years this will require top-line increases, compensating cuts, or some combination of the two, but we must ensure an approach that meets all of our vital security needs.

Mr. ROGERS. How are the services and DOD evaluating the technical risk of commonality across the service's strategic missile systems (GBSD and D5)? Is there a rigorous process for evaluating the risk of a common technical failure potentially bringing down two legs of the triad simultaneously?

Dr. HOPKINS. The Under Secretary of Defense for Acquisition, Technology, and Logistics signed the "Report to Congress on Strategic Missile Commonality" in December 2015 in response to a House Report that accompanied the Fiscal Year 2016 National Defense Authorization Act. This report addressed the benefits and risks of pursuing various types of commonality between the Ground-Based Strategic Deter-

rent (Minuteman-III replacement) and Submarine Launched Ballistic (D–5) Life Extension programs, and provided an update on the actions taken by the Navy and Air Force to address commonality of new strategic missile acquisition programs.

The risk that a single fault or vulnerability in any product could simultaneously disable multiple systems is extremely low because of the rigorous testing regimes employed by both services and the detailed tracking of component pedigrees. The lower reliability of early systems that drove us to deliberate diversity and redundancy is generally no longer the case. Additionally, due to the different procurement schedules for both the Air Force and Navy, the number of fully common and simultaneously produced components will be quite low, further reducing the operational impact should this unlikely event occur.

Mr. ROGERS. General Rand, we discussed this in the hearing but I wanted to provide you an opportunity to expand on your thoughts regarding suggestions that we simply extend the Minuteman III system into the future rather than procure a new system under GBSD. My understanding is that the Minuteman III system was designed with—and still has—1970s accuracy and it needs to be updated and improved to modern standards to meet STRATCOM's requirements into the future. And that the Minuteman's reliability and effectiveness are slowly degrading over time as adversaries improve their own capabilities. And that simply upgrading Minuteman III with more modern guidance systems won't be enough to meet STRATCOM's requirements. Why? Please provide a detailed, unclassified answer and justification.

General RAND. While the Minuteman III continues to be a vital piece of the U.S. nuclear Triad, its guidance system is based on 1970s technology and faces a significant electronics age-out issue that will impact system effectiveness in the future. Additionally, other flight subsystems (e.g., boosters, propulsion system rocket engine) are facing asset depletion and similar age-out conditions driving investment/recapitalization no matter what approach we undertake to maintain an ICBM capability. In addition, the propulsion system requires performance margin (more than MM III can offer) to address emerging strategic threats.

Validated requirements for the GBSD weapon system will address all critical performance gaps and have been coordinated with USSTRATCOM. Our analysis concluded that none of the Minuteman III life extension options will address these performance shortfalls and will come with greater life-cycle cost as validated by OSD/CAPE. Minuteman III has been a stalwart of the nation's strategic deterrent for many years, however the time has come to transition to technologies that ensure the U.S. maintains a modern, reliable, and effective ICBM capability.

Mr. ROGERS. General Rand, would extending the life of Minuteman III indefinitely out into the future be cheaper than buying a new system under GBSD? Specifically, what components of the missile and ground infrastructure would need to be upgraded and why isn't it cheaper to continue life-extending those existing subsystems and components? How does the aging of the missile motors play into the cost equation? Please provide us detailed unclassified information.

General RAND. The GBSD Analysis of Alternatives indicates that recapitalizing the Minuteman III and developing GBSD has a replacement are likely to incur similar costs. Past decisions to delay modernization have placed us in a "must do" situation to address asset depletion and to keep the ground based leg of the Triad safe, secure, and effective. With regard to flight systems, we need to replace everything from the reentry system (excluding the reentry vehicles) to the first stage nozzles (we can potentially reuse Stage Two and Stage Three motor cases). Additionally, much of the current Critical Nuclear Infrastructure/non-flight system components require replacement. The current solid rocket motor engineering estimates predict that the MMIII boosters will last approximately 27 years. While that is beyond the original 20 year design life, the Air Force has plans, as part of the GBSD effort, to replace those motors along with the rest of the flight systems in 2028. As a result, we would still be forced to conduct a costly life-extension program without solving the MMIII performance gaps.

Additionally, ground infrastructure modernization has continually been deferred. Numerous issues with parts obsolescence and increased failure rates drive a full recapitalization effort. For example, launch control center ground equipment critical failures have increased approximately 75% in the last five years.

Mr. ROGERS. General Rand, please provide us unclassified details of the analyses of alternatives the Air Force conducted with respect to both GBSD and LRSO.

General RAND. The LRSO Analysis of Alternatives (AoA) was a benchmark process in terms of efficiency and analysis. The draft Capability Development Document (CDD) was approved by the Air Force Requirements Oversight Council (AFROC), signed by the Chief of Staff of the Air Force (CSAF), and we are on schedule for the Technical Maturation and Risk Reduction phase in May 2016. The AoA began

with AF/A10 initiated the Airborne Strategic Deterrence Capabilities Based Assessment and the Joint Requirements Oversight Council's (JROC) validation of the Initial Capabilities Document. A Material Development Decision was made for a follow-on cruise missile to replace the capable but aging ALCM in order to maintain the long-range standoff capability. These studies and the subsequent AoA identified significant ALCM deficiencies to include future stockpile shortfalls, a requirement for several service life extension programs, and major survivability issues against future threats. The AoA was completed in July of 2012, AFROC validated the results in January of 2013, and the CSAF approved the results in February of 2013. The JROC has approved the LRSO AoA and the subsequent requirements documents will be used to inform future funding decisions.

The GBSD analysis includes continuing silo-basing with weapon system flight, ground, and command and control system upgrades, while retaining the option to pivot to hybrid basing. Additionally, the findings include restoring infrastructure by modernizing launch facilities and launch control centers while retaining the option to upload to multiple reentry vehicles. In addition, guidance modernization will greatly reduce nuclear security risks by allowing removal of failed components without removing the weapons. Longer life propulsion motors are feasible and will be a requirement for the replacement effort. Bottom line, life cycle costs for a replacement system were lower than life extending the current Minuteman III weapon system.

Mr. ROGERS. General Rand, what is your professional military opinion on why we need LRSO? To take another angle here, why do we need LRSO if we have JASSM–ER?

General RAND. These 2 weapons satisfy different mission sets. There are inherent design differences in a missile built for the nuclear mission as opposed to a conventional only missile. The JASSM–ER (AGM–158B), while a highly capable conventional system, did not undergo the rigorous design and evaluation process to ensure its functionality in the unique and harsh environments associated with nuclear weapons. The Long Range Standoff (LRSO) cruise missile will be a nuclear-armed and highly survivable missile that will replace the current AGM–86B ALCM which will be sustained through 2030. USSTRATCOM has targets designated for nuclear-armed cruise missiles. In order to ensure and preserve the ability to hit targets, we need a more survivable weapon. The LRSO is more survivable and reliable, and will allow us to hold required targets at risk.

The future adversarial environment is one where advanced air defenses are more robust and Anti-Access and Area Denial (A2/AD) is a greater challenge. The LRSO will have significant range, allowing it to avoid threats while en route and to fly around third party countries. Also, LRSO will be able to hold targets within current and future A2/AD environments at risk, preserving the recallable manned bomber capability, without having as much risk to aircrew as employing a B–61 weapon. Additionally, the LRSO will effectively influence adversaries across a complete range of operations with its lethality, ability to penetrate defenses, reliability and robustness. Its presence will also influence current/future adversaries who may not view our current nuclear capabilities as credible. In order to preserve the President's ability to hold any target at risk at any time as part of the "Air" Leg of the Nuclear Triad, LRSO is critical.

Mr. ROGERS. General Rand, we spoke last week about the statutory requirement to pursue a conventionally armed LRSO. Are you and the Air Force tracking this conventional requirement and putting it into program plans? When do you expect a conventional LRSO to be fielded?

General RAND. AFGSC fully intends to seek a conventional variant of the Long Range Standoff (LRSO) weapon as a future spiral to the nuclear variant. At this time, however, the main focus for LRSO is to successfully develop a replacement for the nuclear-armed AGM–86B Air Launched Cruise Missile. Upon successful development of the LRSO, AFGSC will pursue a conventional variant following the Joint Capabilities Integration & Development System process and codifying any conventional variant requirements in a Joint Requirements Oversight Council (JROC) validated capabilities document. The LRSO program is currently funded and on schedule for the nuclear variant only.

Mr. ROGERS. General Rand, would you please provide us a diagram showing who is involved with NC3 in the Air Force, broken down by organization and program? Please also include a detailed illustration of current NC3 integration and staffing at AFGSC and the planned goal, with an implementation plan to achieve the goal?

General RAND. [The information referred to is classified and retained in the committee files.]

Mr. ROGERS. General Rand, will the Air Force will pursue commonality in key subsystems, such as guidance systems, in GBSD and the Navy's D5 missile system?

How is the Air Force building commonality into its contracting and acquisition strategy for GBSD? How is the Air Force going to consider, in its award criteria for the GBSD contract, very long-term cost savings to the Navy's missile system?

General RAND. The Air Force plans to pursue "smart commonality" with the Navy's D5 missile and other similar systems as a means to lower Ground Based Strategic Deterrent (GBSD) program costs and risk. The Air Force's acquisition strategy for GBSD incentivizes low risk and affordable solutions to meet GBSD requirements. Air Force market research has shown that industry sees "smart commonality" as a means to delivering a "best value" solution for GBSD in a competitive acquisition and is inherently incentivized to bring forward designs that leverage commonality. For GBSD award criteria, the Air Force does not directly consider any long-term savings to the Navy's missile system, however, the Air Force assesses the GBSD acquisition approach, including delivery of a modular guidance system, development of advanced model-based engineering for strategic missiles, and production of a strategic common parts program for electronic and radiation hardened parts.

Mr. ROGERS. How are the services and DOD evaluating the technical risk of commonality across the service's strategic missile systems (GBSD and D5)? Is there a rigorous process for evaluating the risk of a common technical failure potentially bringing down two legs of the triad simultaneously?

General RAND. Per direction of the Air Force and Navy Service Acquisition Executives, and the Commander, United States Strategic Command, the Air Force and Navy launched a Strategic Systems Commonality Assessment in July 2015 to address this topic. The team assessed potential benefits, risks, and cost implications, while considering requirements and Concept of Operations, system flexibility and adaptability, acquisition strategy, and lifecycle costs. Additionally, the Air Force tasked the RAND Corporation to perform an independent assessment of the risks associated with commonality between the Intercontinental Ballistic Missile (ICBM) and Sea Launched Ballistic Missiles (SLBM) weapon systems in September 2015. Both of these studies produced recommended common subcomponents and investigated the risks of commonality in each of these cases. The final reports associated with each of the studies will be published in summer 2016 and will be made available to assist the GBSD program office as they enter the Technology Maturation and Risk Reduction acquisition phase. The Air Force and Navy will continue to evaluate the risks associated with commonality throughout the GBSD design phase.

Mr. ROGERS. General Rand, do you agree with the characterization that we hear that our nuclear forces, particularly our ICBMs, are on "hair-trigger alert"? Many are suggesting we take our ICBMs off alert—do you agree? Why is this a bad idea?

General RAND. Our ICBMs are not on "hair-trigger" alert; they are simply on alert. There are many redundant personnel, technical, and procedural safeguards that must be followed before an ICBM can be launched; that process begins with the President ordering such a launch. Any characterization of U.S. ICBM alert as "hair trigger" is misinformed.

Taking ICBMs off alert defeats one of the biggest advantages they provide which is responsiveness. Responsiveness does not mean dangerous or hair-trigger; it means our potential adversaries know we are capable of a quick, decisive response to any attack if the President so orders. Further, de-alerting ICBMs can actually undermine strategic stability as it may lead to a "race to alert" scenario in a crisis and exacerbate escalatory behavior. Decades of experience demonstrates that the responsiveness of on-alert ICBMs is a stabilizing force.

Mr. ROGERS. General Rand, where does the Air Force buy the microchips and other critical electronic components for inclusion in its nuclear weapons and nuclear command and control systems? Is it from a secure, trusted foundry?

General RAND. While the Air Force buys some microchips from trusted foundries, current industrial capacity and affordability concerns preclude a widespread mandate. The Air Force implements Department of Defense Instruction 5200.44 that directs "mission critical functions and critical components within applicable systems shall be provided with assurance consistent with the criticality of the system and with their role within the system."

Mr. ROGERS. General Rand, this committee has been tightening the screws across the board on the agencies we oversee, trying to wring out inefficiencies and wasteful overhead spending. We've been requiring reductions in DOD headquarters personnel of 20% or more. But Global Strike Command is still a relatively young command and is absorbing more missions as time goes on. What are your manning levels and are they sufficient? Do you have sufficient personnel and funding to support your requirements? As missions and capabilities have flowed to you from other major commands, have billets and funding flowed with them?

General RAND. Thank you for the opportunity to comment on Air Force Global Strike Command (AFGSC) Manning Levels. AFGSC Headquarters took a 20% re-

duction in FY15 in support of the Management Headquarters' drawdown. Since that time, AFGSC has taken ownership and responsibility for new missions to include the B–21 and B–1. In addition, the uncertainty with regard to the Budget continues to influence our ability to properly staff our mission requirements.

New initiatives such as National Leadership Command Capabilities (NLCC), Nuclear Command and Control Communications (NC3), National Airborne Operations Center (NAOC) and School of Advanced Nuclear Deterrence Studies (SANDS) missions have added an increased workload to the command. A request for manning resources was included in the FY18 POM and is currently pending an Air Force Corporate Structure funding decision.

Currently AFGSC is looking at how we will efficiently meet future manning challenges as we look toward the B–21, Ground Based Strategic Deterrent (GBSD), UH–1N replacement and the Long Range Standoff (LRSO) cruise missile in a manning and resource constrained environment.

As for having a sufficient number of personnel, there are a lot of manning requirements due to aging equipment and future modernization that AFGSC is responsibly and systematically addressing through the Air Force Corporate Process. Potential adversaries are continuing their modernization efforts for defensive systems. In order to maintain a credible deterrent the AF must be able to hold targets at risk in this ever increasing defensive environment. That requires an increase in manning to accomplish the mission.

As to funding, over the last few years, the DOD and AF have demonstrated strategic nuclear deterrence is a priority with the amount of money that has been allocated and re-directed to this vital mission. As I mentioned in my testimony, we are making significant headway in our modernization and recapitalization efforts but it will take time and consistent, reliable funding to field modifications to legacy systems and simultaneously field replacements for other systems. Additionally, AFGSC is assuming new missions and my staff is still researching all the requirements and funding needed for us to successfully execute those missions, which will be included in future budget requests. Sustained support from the AF, DOD and Congress is needed to ensure we can continue to provide a safe, secure and effective nuclear deterrent.

The staffs from both the losing and gaining commands worked diligently to determine what resources would be transferred to support missions being realigned and I think they did a very good job. Nobody from either side wanted to see the mission degrade or fail. AFGSC will include any shortfalls identified in future budget requests.

Mr. ROGERS. Vice Admiral Benedict, we understand that the success of some Department of the Navy programs often hinges on the Department's ability to develop strong partnerships and collaborate with State and local government agencies, such as local law enforcement and emergency response agencies. Acknowledging this need to collaborate, we also recognize that it must be challenging for the Navy to ensure the protection of data shared with State and local agencies in an age when information flows freely through email and other media platforms. Could you please describe some of the challenges your program faces as it seeks to balance the need to partner and collaborate with State and local agencies with the need to protect sensitive information?

Admiral BENEDICT. I am responsible for all Strategic Systems Programs (SSP) operations and mission requirements on my installations, including security, force protection, and explosives safety. In meeting these mission requirements, I place a high priority on the health and safety of my personnel and the public in the areas surrounding SSP installations. In order to ensure the safety and security of our personnel and the public, SSP sometimes shares information, including controlled unclassified information, such as Unclassified Controlled Nuclear Information (UCNI) and Critical Infrastructure Security Information (CISI), with state and local law enforcement and emergency response agencies. However, in the wrong hands, this controlled unclassified information, which may include explosives safety and emergency response planning information, could be used to threaten the security of our installations and to harm persons and property on our installations and in nearby communities.

When this type of information is requested under the Freedom of Information Act (FOIA), SSP is equipped with security experts with decades of operational and nuclear weapons security experience that are capable of carefully scrubbing and identifying controlled unclassified information for redaction. As long as UCNI and CISI remain under SSP's control and, consequently, are subject to the FOIA, I am confident that SSP can meet its mission requirements. However, SSP is restricted in its ability to ensure the protection of this information when it comes under the control of our state and local partners, because these agencies may be subject to state

open records laws that do not afford the same level of protection or opportunity for review by SSP. For this reason, it is crucial that controlled unclassified information shared with our state and local partners remains under SSP's control, where it can be carefully scrubbed by subject matter experts and redacted prior to release under the FOIA.

SSP must delicately balance its need to collaborate with state and local agencies with the need to ensure the protection of its information. SSP must be able to protect controlled unclassified information to ensure the operability, reliability, safety, and security of the TRIDENT II (D5) strategic weapon system, which the United States relies heavily upon as a strategic deterrent and to ensure national security. Although 10 U.S.C. § 130e clearly provides that CISI shared with state and local agencies remains under SSP's control, there is no corresponding provision in 10 U.S.C. § 128 for UCNI. Moreover, neither the CISI statute, nor the UCNI statute, provide adequate assurance that requests for this information will be received for processing by SSP under the FOIA once it has been shared with state or local agencies. SSP will continue to collaborate with its state and local agency partners, but there remain significant challenges to ensuring that it can continue to do so while ensuring the protection of its information.

Mr. ROGERS. Vice Admiral Benedict, I understand you have been working closely with the Air Force to examine ways in which aspects of your sea-based missile system could be made more common with the Air Force's land-based missile system. What have you all determined and what are the prospects for this approach successfully achieving cost savings within the programs?

Admiral BENEDICT. The Air Force and Navy have evaluated both full system commonality and component/sub-system level commonality for their respective future strategic ballistic missile systems. These evaluations concluded that full system commonality likely did not afford sufficient benefit to offset the expected additional costs and risks. However, component/sub-system commonality held significant promise to reduce not only the costs of the two ballistic missile systems, now and in the future, but also near-term technical and schedule risks for the Ground-Based Strategic Deterrent (GBSD) program. The Services are evaluating commonality components and technologies for the GBSD development efforts. These efforts should lower development costs for future strategic systems while ensuring both systems remain safe, secure, effective and credible

Mr. ROGERS. How are the services and DOD evaluating the technical risk of commonality across the service's strategic missile systems (GBSD and D5)? Is there a rigorous process for evaluating the risk of a common technical failure potentially bringing down two legs of the triad simultaneously?

Admiral BENEDICT. The risk that a single fault or vulnerability in any product could simultaneously disable multiple systems is extremely low because of the rigorous testing regimes employed by both services and the detailed tracking of component pedigrees. The lower reliability of early systems that drove us to deliberate diversity and redundancy is no longer the case. Additionally, due to the different procurement schedules for both the Air Force and Navy, the number of fully common and simultaneously produced components will be quite low, further reducing the impact should this unlikely event occur.

QUESTIONS SUBMITTED BY MR. COFFMAN

Mr. COFFMAN. Several Defense officials have expressed concerns about Russia's intent to use advanced digital sensors to collect imagery under the Open Skies treaty. Is this a significant concern for our nuclear forces? What can Congress do to mitigate the risk?

General RAND. Intelligence collection against our nuclear forces is always a concern. The imaging system to be placed on the Tu-214 and Tu-154 is already in use on Russian aircraft flying Open Skies missions over Europe. The new system possesses greater range and an advanced digital processing capability, providing a significant increase in the number of images that can be collected. This digital capability, through post mission image refinement of raw image data, could potentially enable the Russians to violate the treaty by keeping the raw image data and later using advanced digital image enhancement techniques to refine resolution beyond that allowed in the treaty.

If and when they are certified for use under the Open Skies Treaty, the increased aircraft range and sensor capabilities of the Tu-214 and Tu-154 may be of concern. However, I believe these can largely be mitigated with diligent treaty compliance measures. Rigorous inspections and monitoring are needed to ensure treaty compli-

ance by verifying the Russians do not possess the capability to retain and/or transmit raw sensor data on board to later enhance collected images.

Mr. COFFMAN. The committee continues to hear about cyber and space becoming contested warfighting domains. What are your primary concerns about space and cyber threats as they relate to our strategic nuclear forces?

General RAND. I'm very concerned about space and cyber threats. As a country, we are engaged daily in cyberspace. Primary cyber threats include supply chain vulnerabilities, security of cleared defense contractor networks, fielded systems not meeting current cybersecurity standards, sensitive information on the internet, and insider threats. We are taking actions to mitigate these threats by implementing the latest security controls across all our mission systems. I'd defer to Air Force Space Command for further questions on cyber threats and responses.

Space is a contested environment and potential adversaries continue to research and potentially field kinetic and directed energy counter-space capabilities which could directly affect our space-borne and other associative warfighting capabilities. I'd defer further space responses to Air Force Space Command.

Mr. COFFMAN. What key investments do we need to make to ensure our missile warning system is able to meet the requirements of our nuclear forces?

Admiral BENEDICT. The Navy is committed to ensuring missile warning capabilities are funded, operated, maintained, and modernized to provide real-time monitoring of any adversarial missile warning threats. As Director of Strategic Systems Programs, I support the department's investments to meet the requirements of our nuclear forces.

Mr. COFFMAN. Several Defense officials have expressed concerns about Russia's intent to use advanced digital sensors to collect imagery under the Open Skies treaty. Is this a significant concern for our nuclear forces? What can Congress do to mitigate the risk?

Admiral BENEDICT. I do not believe this is a significant concern to our nuclear forces. The resolution of Open Skies imagery is similar to that available in commercial satellite imagery.

All State Parties have the right under the Treaty to certify new sensors and aircraft. The United States and several of our Allies are in various stages of acquiring new digital sensors.

The information Russia gleans from Open Skies is of only incremental value in addition to Russia's other means of intelligence gathering. I am notified in advance of any Russian over-flight of my area of operations.

Mr. COFFMAN. The committee continues to hear about cyber and space becoming contested warfighting domains. What are your primary concerns about space and cyber threats as they relate to our strategic nuclear forces?

Admiral BENEDICT. The Navy's top priority is to maintain a credible, modern, and survivable sea-based strategic deterrent. To successfully execute this mission, the Navy's Nuclear Command, Control, and Communications (NC3–N) systems are protected to the strongest extent possible. The Department continues to rigorously apply all necessary mitigations and counter-measures to ensure NC3–N systems are maintained at the highest protection levels.

Space and Naval Warfare Systems Command (SPAWARSYSCOM) is the NC3–N Chief Engineer. SPAWARSYSCOM is the single technical authority responsible for system of systems oversight.

The Navy implemented a centralized regulatory authority for nuclear force readiness. As the Director of Strategic Systems Programs, I have accountability, responsibility, and authority to serve as the single Flag Officer to monitor performance and conduct end-to-end assessment of the Navy Nuclear Deterrence Mission (NNDM) elements to ensure a safe, reliable, and effective execution of the NNDM, inclusive of NC3–N.

The Department is available to address threats in a classified setting upon request.

QUESTIONS SUBMITTED BY MR. GARAMENDI

Mr. GARAMENDI. Is it U.S. policy to match our adversaries' nuclear forces yield-for-yield, delivery vehicle-for-delivery vehicle? If a foreign adversary develops a ground-launched cruise missile or a very low yield weapon or a novel nuclear weapon system, does the United States need to develop a similar system to deter nuclear use?

Mr. SCHER. Our approach to meeting the range of challenges we now face or might face in the future is to maintain a deterrent that is robust and stable, rather than one that is necessarily reactive to every action of potential adversaries. This

remains best served by sustaining the nuclear Triad and Dual-Capable Aircraft (DCA) with a diverse range of nuclear explosive yields and delivery modes. The Triad and DCA provide the credibility, flexibility, and survivability to meet and adapt to the challenges of a dynamic 21st century security environment, without the need to mirror every potential adversary, system-for-system and yield-for-yield. Thus, the Administration's plan focuses on sustaining and modernizing current platforms, delivery systems, and warheads to preserve existing military capabilities in the face of evolving threats, rather than developing new nuclear warheads with new military capabilities. In addition to positioning us to address threats as they emerge, this approach bolsters strategic stability by decreasing incentives for, and the likelihood of, a future arms race.

Mr. GARAMENDI. Mr. Scher, in your testimony you state that "We accept and convey the reality that no one can count on controlling escalation." However, you also state that "We do not want to simply assume that once the nuclear threshold has been crossed that escalation cannot be limited." Can you explain how the Department of Defense thinks about controlling escalation near and above the nuclear threshold? How does the Department of Defense plan for something which is does not know to be controllable?

Mr. SCHER. The highest priority of our nuclear weapons policy is to deter nuclear attack on the United States and our allies. We must be prepared to deter not only large-scale nuclear attack, but also limited nuclear attack and deliberate nuclear escalation arising out of conventional regional conflict.

Deterring adversary nuclear first-use is a key objective of our overall deterrence strategy. We cannot know for certain whether we will always succeed, but we sustain robust deterrent capabilities and strategy to minimize the likelihood any adversary will ever resort to nuclear weapons employment. Key to this deterrence strategy is reminding potential adversaries that no one can predict with certainty the end result of a decision to introduce nuclear weapons into a conflict with the United States or its allies.

Mr. GARAMENDI. General Rand, as commander of Global Strike Command you are responsible for the U.S.'s most powerful conventional weapon (the massive ordinance penetrator) and its least powerful nuclear weapon (the B61 gravity bomb). Do you see value in the many orders of magnitude difference between their explosive yields? Is there a military requirement for a weapon which would narrow this gap? Mr. Scher, please share the Department's views on these questions.

Mr. SCHER. The Department does not see a need for a more powerful conventional bomb or a lower-yield nuclear weapon at this time. We believe we can meet current military requirements without developing new nuclear warheads or new military capabilities and we continue to manage our nuclear modernization consistent with this belief.

Mr. GARAMENDI. Is there a bow wave expected for nuclear command and control systems?

Mr. SCHER. As is the case for other critical components of the nuclear enterprise, recapitalization of our Nuclear Command and Control (NC2) systems requires increased funding during the next decade.

Mr. GARAMENDI. What are the risks for strategic stability of moving to more accurate and "usable" nuclear weapons? Do you agree with former Secretary Perry's concern that we are on the brink of a new nuclear arms race?

Mr. SCHER. The Administration's nuclear sustainment and modernization program is focused on maintaining the set of flexible response options currently available to the President for responding to a wide range of extreme circumstances. Sustaining these capabilities, including retaining lower-yield options, will not result in more "usable" weapons. It will not lower the nuclear threshold or increase the likelihood of U.S. nuclear use. Indeed, the United States has long maintained a high threshold for nuclear use together with a diverse range of nuclear forces and response options. Maintaining a credible ability to respond to a limited or large-scale nuclear attack against the United States or our allies strengthens our ability to deter such attacks from ever taking place.

The United States is not on the brink of a new nuclear arms race, and our nuclear sustainment and modernization program is designed to decrease the likelihood of a future arms race. The President's plan is decreasing the number and types of nuclear warheads in the arsenal, not increasing them. The United States and Russia are both decreasing their deployed strategic nuclear weapons in accordance with the New START Treaty.

The current U.S. nuclear stockpile is a dramatic departure from the Cold War, and we are retaining only those capabilities we need to sustain stable and effective deterrence. We have reduced from 23 nuclear warhead types in 1990 to 12 warhead types today, and the B61–12 Life-Extension Program (LEP) is on track to allow us

to reduce further to 6 warhead types by the mid-2020s. The B61–12 will replace multiple variants of the B61 that have different explosive yields, and will have lower yield than some of these variants, but it will not expand the range of yield options available in the current stockpile. It will also replace the B83 strategic bomb, the last megaton-class weapon in the stockpile.

Mr. GARAMENDI. Why don't the GBSD and nuclear subs provide sufficient standoff? Why is the LRSO needed for this purpose?

Mr. SCHER. The Administration's decision to develop a Long-Range Standoff (LRSO) cruise missile to replace the aging Air-Launched Cruise Missile (ALCM) is essential to maintain the ALCM's unique contribution to the range of credible options available to the President for responding to nuclear attack. Maintaining cruise missile capability ensures the President does not have to rely solely on ballistic missiles, which have different operational characteristics and constraints. And because aircraft can be visibly deployed and flown during a crisis, they provide a forceful reminder to an adversary contemplating aggression that the risk it faces is real. The ALCM capability strengthens the President's ability to respond proportionately to a limited nuclear attack, which in turn strengthens our ability to deter such attacks from ever taking place. This is critical in a world where we must not only avoid unintended escalation, but also deter deliberate nuclear escalation like that envisioned in Russia's current strategy.

Mr. GARAMENDI. Mr. Hopkins, in your testimony you stress the importance that the United States build and maintain a flexible nuclear infrastructure. Why does the United States need the capacity to produce 50–80 plutonium pits per year? To your knowledge, where did that number come from?

Dr. HOPKINS. The conclusion of the January 2014 "Assessment of Nuclear Weapon Pit Production Requirements" report to Congress is that the Nation requires a pit production capacity of 50–80 pits per year. The report explains that pit production capacity is tied to four factors: policy objectives for the nuclear deterrent (responsive infrastructure to address technical and geopolitical surprise); stockpile aging (including pit age and plutonium aging); military requirements (including planned life extension programs); and infrastructure costs and capacity.

Mr. GARAMENDI. General Rand, as commander of Global Strike Command you are responsible for the U.S.'s most powerful conventional weapon (the massive ordinance penetrator) and its least powerful nuclear weapon (the B61 gravity bomb). Do you see value in the many orders of magnitude difference between their explosive yields? Is there a military requirement for a weapon which would narrow this gap? Mr. Scher, please share the Department's views on these questions.

General RAND. The Massive Ordnance Penetrator was specifically designed to deliver the largest possible conventional explosive yield that could be placed into a guided bomb and fit into the bay of a bomber. While an even larger conventional explosive yield would provide military value in holding potentially more adversary targets at risk, achieving this will require several radical advancements in bomb design technology in order to not exceed bomber capabilities.

There is benefit in having a clear, measurable gap between the largest conventional and smallest nuclear explosive yields in that it avoids ambiguity and miscalculations during post-strike assessment. Misinterpretation of whether a strike included the use of nuclear warheads may cause an undesirable escalated response and jeopardize the ability of the US to control further escalation.

Mr. GARAMENDI. How much funding is included in the R&D for the new ICBM (Ground-Based Strategic Deterrent (GBSD) to reserve the option of making it a mobile missile?

General RAND. The draft requirement from the warfighter is to make the GBSD system adaptable and flexible to changing technology and threats. The requirement encompasses Force Development Concepts such as mobile launch control centers. There is no current concept or funding for a mobile missile. The GBSD analysis recommended continued silo-basing.

Mr. GARAMENDI. Please provide a life-cycle cost estimate for the GBSD and the LRSO.

General RAND. The GBSD AoA assessed life-cycle costs (BY14) for a silo-based system is $159B. Currently, the Air Force Service Cost Position and the OSD Initial Cost Estimate are pending.

The Air Force expects LRSO will cost approximately $20.5B over its life cycle. Approximately $9.8B will be needed to develop, procure, and field the weapon, while operations, support, and demilitarization are expected to cost approximately $10.7B. These estimates do not include the DOE/NNSA dollars to develop and field the nuclear warhead.

These estimates will be updated as part of each program's upcoming Milestone A decision.

Mr. GARAMENDI. Did the Air Force consider extending the life of the current ICBMs for less than 50 years, say until 2045, instead of until 2050–2075? Would the cost be less than to extend it to 2050–2075?

General RAND. The Air Force used information from previously accomplished studies to inform the GBSD Analysis. These studies looked at different timelines to extend/replace Minuteman.

The GBSD AoA estimated that costs would be higher to extend the life of Minuteman III (MMIII) versus a GBSD replacement, and validated warfighter requirements would not be met. Additionally, much of the current critical nuclear infrastructure, non-flight system components, and support equipment require replacement.

The cost would not be less if we extend MMIII until only 2045 because it faces near term age-out and attrition of assets. The GBSD program will leverage efficiencies of a new system with modular interfaces. The GBSD AoA included a longer life span to identify potential advantages of greater service life components and systems.

Mr. GARAMENDI. Why would a new ICBM need more capability and greater accuracy as was recently reported in a Daily Beast article?

General RAND. At the unclassified level, I often say that our enemy gets a vote. Potential adversaries are continuing their modernization efforts of their defensive systems to attempt to minimize what our ICBM force can effectively hold at risk. In order to maintain a credible deterrent, the ICBM force must have the performance to overcome these defensive measures.

Improved ICBM capability and accuracy has the benefit of providing ICBM strike planners the weaponeering options of either achieving a higher probability of effect on a given target; using fewer warheads per target while still achieving the desired level of effect and thus allowing more targets covered; or provide opportunities to potentially reduce yield size while still achieving the desired level of effect. These weaponeering options will be critical if changes to the current strategic weapon stockpile would otherwise adversely impact what targets could effectively be held at risk.

Mr. GARAMENDI. Please describe the added capabilities of the LRSO vs the ALCM, and of the GBSD vs the current ICBM?

General RAND. The AGM–86B ALCM was initially fielded in the 1980s. It is an old weapon system and we are experiencing Diminishing Manufacturing Source, quantity and sustainability issues. We continue to sustain the ALCM until replaced with the Long Range Standoff (LRSO) cruise missile. The LRSO will be a more modern and more survivable nuclear cruise missile which will preserve the President's ability to hold any target at risk at any time as part of the "air" leg of the nuclear triad.

The current ICBM faces component age-out and attrition issues, and a MMIII life extension does not address valid gaps in effectiveness, survivability, security, flexibility, sustainability, and adaptability. GBSD includes performance margin for solid rocket motors, more accurate delivery, capabilities to address emerging defensive threats, and flexible communications in all operational environments. As a result of ground system needs, GBSD looks to lower life cycle costs by capitalizing on technology to improve diagnostics, enhance security and potentially implement new methods to operate, maintain and secure the system.

Mr. GARAMENDI. Is it U.S. policy to match our adversaries' nuclear forces yield-for-yield, delivery vehicle-for-delivery vehicle? If a foreign adversary develops a ground-launched cruise missile or a very low yield weapon or a novel nuclear weapon system, does the United States need to develop a similar system to deter nuclear use?

Admiral BENEDICT. The Administration's plan focuses on sustaining and modernizing current platforms, delivery systems, and warheads to preserve existing military capabilities in the face of evolving threats, rather than developing new nuclear warheads with new military capabilities. The Navy supports this plan by ensuring a credible, flexible, and survivable sea-based strategic deterrent to meet and adapt to the challenges of a dynamic 21st century security environment, without the need to mirror every potential adversary, system-for-system and yield-for-yield.

Mr. GARAMENDI. Admiral Benedict, you mention in your testimony that any delay in the Common Missile Compartment which will deployed in the U.S. Ohio Replacement submarine and the UK's Vanguard submarine could put the UK's continuous at-sea deterrent at risk. There has been some debate in the UK about whether or not to build Vanguard. Will a delay or cancellation of Vanguard put the Ohio Replacement submarine's deployment at risk?

Admiral BENEDICT. A delay or cancellation of the UK Vanguard Successor Program will not put the OHIO Replacement submarine deployment at risk. However,

there would be a potential cost impact to the remaining Ohio Replacement program. The UK provides 12.5% of the Common Missile Compartment Development funding. A cancellation prior to completion of the development effort may require additional U.S. RDT&E to complete the development effort.

QUESTIONS SUBMITTED BY DR. FLEMING

Dr. FLEMING. AFRL's allocation of S&T research funding for the NDO mission seems relatively low compared to other core functions. Is the S&T research conducted by AFRL sufficient for NDO mission support? Why is there such an imbalance and would conducting the research at AFGSC improve the ratio? Do other MAJCOMs have this problem?

General RAND. AFRL's S&T research funding in direct support of the NDO mission area is relatively low compared to their direct investments in other comparable Service Core Functions (SCFs). However, it is important to note that the direct investment numbers only tell part of the story. Currently, for every dollar of NDO direct investment, AFRL leverages roughly 10 dollars of non-NDO investments into programs that are relevant to NDO S&T needs. That is not to say that increased direct funding is not wanted or needed. Additional funding would allow for further incorporation of new technologies to modernize current systems and provide new capabilities for the Global Strike mission into the future.

The imbalance between AFRL's SCF investments is likely due to the relative youth of AFGSC as a command. Today's AFRL research programs are to a degree based on investment decisions made prior to AFGSC's existence. The stand-up of AFGSC increased focus on the NDO mission and at my direction AFGSC is maturing our corporate processes to strengthen the NDO demand signal to AFRL. These processes will better communicate the command's capability gaps, allowing AFRL to better determine what S&T solutions are needed. As AFGSC continues to institutionalize our processes and better communicate our needs to AFRL, I believe their relative investment in NDO S&T will increase.

Conducting S&T research at AFGSC is not a feasible option; we do not have the requisite infrastructure or expertise.

Unfortunately, I cannot speak to the other MAJCOMs' funding levels, however I would guess they are similarly constrained in today's fiscal environment.

Dr. FLEMING. Do you have enough R&D capacity to support your mission? What about for deterrence and escalation research? Should deterrence research be the purview of the MAJCOM? Would it be helpful to AFGSC if the Congress authorized and appropriated RDT&E funding (categorized as "3600 funds") for your use specifically in the area of deterrence research? How much annual funding would be adequate for such a research program?

General RAND. AFRL S&T research support to the NDO Service Core Function is discussed in HASCSF–02–045. In the area of deterrence and escalation research, we support the Air Force Deterrence Research Program Initiative sponsored by HAF/A10 (ref. HASCSF–02–047).

Supporting deterrence research is within AFGSC's purview, but we are not the only organization with interest in this area—HAF/A10 and Air Education & Training Command (AETC) (to include the United States Air Force Academy, Air Force Institute of Technology, and Air University) also have equity. As an operational MAJCOM, AFGSC's interest in deterrence research is primarily focused on questions of direct relevance to our mission; broader policy questions would be championed by HAF/A10, and furthering the state of the art in deterrence research would primarily be of interest to AETC. In June of this year, I, along with Lt Gen Weinstein (HAF/A10) and Lt Gen Kwast (AETC/AU), will hold a Nuclear Education and Research Summit to discuss the roles, responsibilities and way forward for deterrence research.

AFGSC would benefit from having an annual RDT&E budget, initially in the single digit $M. This money would allow AFGSC to fund studies of interest to the Command, which could include topics related to deterrence and escalation. By sponsoring key studies, AFGSC could influence the R&D investments of local academic institutions and industry partners, thereby leveraging external funds in support of the NDO mission area. Additionally, this budget would allow the Rapid Capabilities Office (RCO) to conduct demonstrations of and experiments on equipment that is either currently available or in the last stages of development, leading to the rapid acquisition of new capabilities for AFGSC.

Examples of such activities might include: capability based assessments on bomber-specific deterrence-related gaps and new material solutions, CONOPS development and refinement for all AFGSC bombers, funding 6-to-12-month studies on

strategic deterrence or Nuclear Command and Control topics, and Core Function Support Plan development in areas supporting deterrence and strategic planning.

Dr. FLEMING. Is the research program outlined by the Headquarters Air Force sufficient to support your critical national security mission?

General RAND. Air Force Global Strike Command has made steady and continuous progress in maximizing existing research capabilities under the direction of the Headquarters Air Force's Deputy Chief of Staff for Strategic Deterrence and Nuclear Integration (HAF/A10).

Given this area of critical interest, there is still much work to be done to understand existing capabilities and gaps so we can communicate our top research priorities with the Air Force Research Laboratory and other Science and Technology collaborators where we need to put resources in the short, medium, and long term.

HAF/A10 is currently sponsoring a Deterrence Research Initiative being spearheaded by their Research Director, Dr. Jim Blackwell. Although a move in the right direction, it will not be sufficient to address the overall nuclear deterrence mission given the deep connection to both adversary perceptions, and also development of long term capabilities.

We will need well-funded long-term Science and Technology research programs to rebuild the base for our air, ground, and Nuclear Command, Control, and Communications (NC3) missions for 2030 and beyond to allow the nuclear community to be responsive to changing and innovative technology.

Considering the constraints of nuclear surety, early involvement and research capability will be essential to influencing concept and innovative developments which may be readily usable by the conventional community and potential prohibited for use by the nuclear community due to our constraints unless we influence it early.

The bottom line is that knowledge of research sufficiency is inadequate and we are working with the operational, academic, and Science and Technology communities to identify gaps for resourcing.

Dr. FLEMING. I'm concerned critical pieces of the nuclear mission remain spread all across the Air Force. For instance, responsibility and authority for various aspects of the nuclear command and control (NC3) and missile warning mission remain spread across Global Strike Command, Air Combat Command, Air Mobility Command, and Space Command. The nascent effort to modernize NC3 is way too important to let the Air Force go on organizing itself like this. With all of these organizations involved, what does the principle of unity of command tell us about the prospects of success for this effort? Please describe the "regulator" authority within the Navy and compare and contrast that authority to various roles and entities within the Air Force.

General RAND. We have designated NC3 as a weapon system, established a direct support relationship with the AF Nuclear Weapons Center for material management, and created an Air Force NLCC/NC3 Oversight Council which I chair to assist in resource prioritization and advocacy within the Air Force corporate process. We have also begun actions to re-align some units, missions, programs, and responsibilities to AFGSC. The AF has not finalized these actions, and will complete them in the Chief of Staff signed Program Action Directive 16–01 with expected implementation in October 2016. These alignments coupled with the Air Force NLCC/NC3 Oversight Council give me a forum where I will have the relationships, roles, and authorities to be the Air Force's leader for NC3.

While I cannot speak in detail about the Navy's "regulator" authority, I can tell you the Air Force Deputy Chief of Staff for Strategic Deterrence and Nuclear Integration, Lt Gen Jack Weinstein, is responsible for direction, guidance, integration, and advocacy regarding the nuclear deterrence mission of the United States Air Force. In addition, Air Force Materiel Command recently restructured the Air Force Nuclear Weapons Center so they are in direct support to me as the single face for "all things nuclear" in the Air Force.

Dr. FLEMING. I'm concerned critical pieces of the nuclear mission remain spread all across the Air Force. For instance, responsibility and authority for various aspects of the nuclear command and control (NC3) and missile warning mission remain spread across Global Strike Command, Air Combat Command, Air Mobility Command, and Space Command. The nascent effort to modernize NC3 is way too important to let the Air Force go on organizing itself like this. With all of these organizations involved, what does the principle of unity of command tell us about the prospects of success for this effort? Please describe the "regulator" authority within the Navy and compare and contrast that authority to various roles and entities within the Air Force.

Admiral BENEDICT. The Navy implemented a centralized regulatory authority for the Navy nuclear mission readiness as a result of the Nuclear Enterprise Review. As the Director of Strategic Systems Programs, I have accountability, responsibility,

and authority to serve as the single Flag Officer to monitor performance and conduct end-to-end assessments of the Navy Nuclear Deterrence Mission (NNDM) elements, to include Nuclear Command, Control, and Communications (NC3).

In this capacity, I am the NNDM regulatory authority responsible for assessing and reporting issues to the Navy Nuclear Deterrence Mission Council and the Chief of Naval Operations (CNO). As directed in the 2016 National Defense Authorization Act, the Air Force has designated the Strategic Deterrence and Nuclear Integration (USAF A–10) Directorate as the Deputy Chief of Staff to provide oversight of the nuclear deterrence mission.

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