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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
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ON
U.S. STRATEGIC FORCES POSTURE

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U.S. STRATEGIC FORCES POSTURE

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES,
Washington, DC, Wednesday, February 24, 2016.

The subcommittee met, pursuant to call, at 3:33 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. I would like to call this hearing to order, this hearing of the House Armed Services Subcommittee on Strategic Forces.

Today we are focused on the U.S. strategic forces posture, and we have again this year a tremendous pair of witnesses—no pressure, fellas—the Honorable Brian McKeon, Principal Deputy Under Secretary of Defense for Policy, Department of Defense, and Admiral Cecil Haney, Commander, STRATCOM [U.S. Strategic Command].

I want to, as always, thank you all for the time it takes to prepare for these. I know it is an inconvenience, it takes a lot of time and effort, but it is very helpful to us. So I do appreciate that.

We also appreciate the seriousness with which you have prepared for this hearing, and I assure you, we approach our responsibility to provide oversight policy and funding authorization for the Nation's nuclear deterrent, missile defense, and national security space systems and capabilities with the same seriousness.

Your testimony will directly inform the policy and funding authorization decisions we make in the coming weeks as we prepare for the NDAA [National Defense Authorization Act]. These three mission areas could not be more important, indeed existential, to the Nation's security.

Admiral Haney, I noted your recent appearance at the Center for Strategic and International Studies when you stated, quote: "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 deterrent strategy ... Our adversaries pay close attention to whether we back up 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." Close quote.

Admiral Haney, I hope you repeat this point as often as you can.

To many in the public policy and advocacy machine in this city, they either aren't aware of this fact or they are willfully choosing to ignore it. We can't help those who are willingly choosing ignorance, but we shouldn't give up on those who just aren't aware of the facts.

Mr. McKeon, I know you spent a significant amount of time and energy in the Department's Nuclear Enterprise Review of 2013. I am eager to hear how you are ensuring the momentum achieved during this review is maintained, especially as we see key recommendations, like the replacement of Vietnam-era missile field security helicopters, that are languishing in red tape in the Air Force and the Joint Staff.

And I know I don't have to tell you, but I feel it is essential that the American people are aware of the increasing threat we face in outer space. We are facing serious and growing foreign threats to our space systems. We need to work closely with STRATCOM and OSD [Office of the Secretary of Defense] to ensure that the warfighter has the capabilities and authorities to fight and win a war should it extend into space.

With that, I recognize the gentleman, my friend from Tennessee, Mr. Cooper, for any opening statement he may want to make.

[The prepared statement of Mr. Rogers can be found in the Appendix on page 23.]

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

Mr. COOPER. Thank you, Mr. Chairman.

I would like to add my voice in welcoming the witnesses, and also emphasize for this public portion of the hearing that there probably are no more important issues that our Nation or the world faces, because these are existential issues. We have got to get this right. And I appreciate the long professional involvement of both of our witnesses in making sure that we do get these vital existential issues correct.

It is also important from a fiscal standpoint, because literally this is a trillion-dollar subject here, and we have got to get that right as well to make sure that we have a safe, secure, and reliable nuclear deterrent as efficiently as possible. And that costs real money, because we are also talking long-range bombers here, we are talking about new submarines, we are talking about keeping our ICBM [intercontinental ballistic missile] missile fields state of the art.

So these are extremely important topics. Sadly, a lot of our duties have to be held in secret. But I welcome the witnesses and look forward both to the public and the private portions of this hearing.

Mr. ROGERS. Thank you.

And as always, your full opening statements will be accepted for the record, without objection.

And now I recognize you, Mr. McKeon, for 5 minutes to summarize your opening statement.

**STATEMENT OF HON. BRIAN P. McKEON, PRINCIPAL DEPUTY
UNDER SECRETARY OF DEFENSE FOR POLICY, DEPART-
MENT OF DEFENSE**

Mr. McKEON. Thank you, Mr. Chairman, Mr. Cooper, members of the subcommittee. Thank you for this opportunity to testify today on the fiscal year 2017 budget request for strategic forces. We are grateful in the Department for your continuing support of this critical mission of nuclear deterrence and nonproliferation.

Earlier this month, Secretary Carter identified five evolving challenges that have driven the focus of the Defense Department's planning and budgeting this year. The first and second challenges reflect a return to great power competition with Russia and China; third is North Korea; fourth, Iran; and fifth, our ongoing fight against terrorist organizations.

Each has implications for our current or planned strategic capabilities and posture. Let me address each of these briefly in turn.

First, China is introducing qualitative advances into its nuclear and conventional military capabilities as it continues to rise in the Asia-Pacific region. We will continue our rebalance to maintain the regional stability that we have underwritten for 70 years and that has allowed many nations to prosper.

Second, Russia poses one of our most pressing and evolving strategic challenges, challenges felt across the strategic forces mission. Russia has undertaken aggressive actions in Crimea, and elsewhere in Ukraine, and has adapted a pattern of reckless nuclear posturing and coercive threats. Russia remains in violation of the Intermediate-Range Nuclear Forces [INF] Treaty, and Russia remains unreceptive to the President's offer to negotiate further reductions following the New START [Strategic Arms Reduction] Treaty.

Third, North Korea's evolving nuclear weapons and missile programs pose a continuing threat to the United States and our allies and partners. Last month, North Korea conducted its fourth nuclear test, and earlier this month conducted a ballistic missile launch that successfully placed a satellite into orbit.

Fourth, 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. Iran's ballistic missile program is the largest in the region, and we must continue to enhance our ability to defend against this ballistic missile threat today and in the future. As Secretary Carter has underscored, the nuclear deal does not in any way constrain or inhibit the ability of the United States to defend itself or our allies and partners.

Finally, denying terrorists access to weapons of mass destruction and weapons-usable materials is an absolute imperative in the ongoing fight to defeat terrorist organizations.

Let me focus briefly on some key details in the fiscal year 2017 budget.

First, on nuclear deterrence, although the President's ultimate goal is a world without nuclear weapons, he has been clear in his commitment to maintain a safe, secure, and effective nuclear arsenal for as long as nuclear weapons exist.

This is the highest priority of the Department of Defense. We work closely with the Department of Energy to maintain the safety and security of our nuclear forces at the lowest possible number of weapons consistent with retaining a full set of options to respond to and to address current and potential threats.

Our budget request focuses on maintaining stable and robust deterrence in a time of geopolitical uncertainty while also managing the transition to a modernized nuclear force through life extension programs for warheads, replacement of aging delivery systems, and enhancements to sustainment and operations of the current force. It also includes funding necessary to continue addressing the findings of the nuclear enterprise reviews.

Our plan is fully consistent with the administration policy of a reduced role for nuclear weapons in our defense strategy and retains only those capabilities we need to sustain stable and effective deterrence.

The effort to modernize our delivery systems and extend the life of our warheads across the triad and our nonstrategic nuclear force will require significant resources over the next decade and beyond. This critical investment is affordable if prioritized appropriately by the Department, the Congress, and the Nation.

On missile defense, our request funds the development and deployment of a robust ballistic missile defense capability to protect our homeland, deployed forces, and allies and partners. North Korea's launch, which I recently mentioned, underscores the importance of BMD [ballistic missile defense] in protecting the homeland and the need to increase the number of our deployed Ground-based Interceptors to 44, develop a redesigned kill vehicle, and proceed with the development of Long-Range Discrimination Radar. Our budget funds all of these.

As North Korea and potentially Iran make progress on ICBM-class missile technologies, we must be prepared to address new, more complex threats in the next decade. To that end, our budget requests funding for investments in new technologies, including directed energy and the Multi-Object Kill Vehicle. Progress on these technologies, as well as adapting current technologies to new purposes, will enable us to meet the advancing threat and lower the costs of intercepting ballistic missiles.

Our budget also reflects the Department's commitment to building regional missile defenses that are interoperable with systems deployed by international partners. We continue to implement the European Phased Adaptive Approach [EPAA] to missile defense, which is designed to protect our deployed forces and allies in Europe from attacks emanating from the Middle East.

In December of last year, the Missile Defense Agency declared the Aegis Ashore defense system in Romania technically capable of defending against Iranian ballistic missiles. The request supports the implementation of phase three of EPAA, including the upcoming groundbreaking at the Aegis Ashore site in Poland, which will be completed in the 2018 timeframe.

Mr. Chairman, let me briefly touch on space. In his Worldwide Threat Assessment testimony earlier this month, the Director of National Intelligence said that Russia and China understand how

our military fights and how heavily we rely on space, and they are each pursuing destructive and disruptive antisatellite systems.

To address these concerns, the Department conducted a portfolio-wide strategic review of our space systems, focusing on how we assure space capabilities in light of current and future threats. The results included significant new adjustments in the budget, starting with last year and continuing in this year. In addition, we are strengthening the governance of our space enterprise and providing an independent voice in providing assessments to the Secretary.

At Air Force Space Command, we have established a Joint Interagency and Combined Space Operations Center that will allow us to experiment with new operational concepts across the national security space enterprise and develop new concepts and associated tactics for future operations.

We appreciate your support and review of this budget, which is critical to our national defense. Thank you.

[The prepared statement of Mr. McKeon can be found in the Appendix on page 25.]

Mr. ROGERS. Thank you.

Admiral Haney, you are recognized for 5 minutes.

**STATEMENT OF ADM CECIL D. HANEY, USN, COMMANDER,
U.S. STRATEGIC COMMAND**

Admiral HANEY. Good afternoon, Chairman Rogers and Ranking Member Cooper and members of this committee. I am honored to be with you today, and I am pleased to testify with Principal Deputy Under Secretary of Defense for Policy Mr. Brian McKeon.

I am also honored to be here to represent my sailors, soldiers, airmen, and marines and civilians, my team, who carry out the very missions assigned to U.S. Strategic Command. They are dedicated professionals who represent our most precious resource and deserve our unwavering support.

As a result of their efforts, our Nation's strategic nuclear deterrent force remains safe, secure, and effective and ready, and we are working hard to improve the resilience and flexibility in space and cyberspace. It is crucial that we modernize our strategic nuclear deterrence capabilities, which underpin our Nation's security.

As you know, the current global security environment is more complex, dynamic, and uncertain than possibly at any time in our history, and our adversaries and potential adversaries challenge our democratic values and our security in so many ways. They are modernizing and expanding their nuclear capabilities, developing and testing counterspace and cyberspace technologies, and are advancing conventional and asymmetric weapons.

Future deterrence scenarios will likely include multiple adversaries operating across multiple domains using anti-access/area denial, asymmetric warfare, and escalate-to-deescalate tactics. These trends affect strategic stability.

Given all of this, the missions of U.S. Strategic Command remain important to our joint military forces, our Nation, and our allies and our partners.

My command priorities guide our efforts. Comprehensive strategic deterrence, assurance, and escalation control is far more than just nuclear weapons and platforms. It also includes a robust foun-

dational intelligence apparatus, space, cyberspace, conventional and missile defense capabilities, and comprehensive plans that link organizations together in a coherent manner.

Additionally, we engage daily in a broad range of activities across our other mission areas: intelligence, surveillance, and reconnaissance; countering weapons of mass destruction; joint electronic warfare; and analysis and targeting.

Achieving comprehensive strategic deterrence, assurance, and escalation control requires a long-term approach to investing in capabilities and a multigenerational commitment to intellectual capital. The President's budget for fiscal year 2017 strikes a responsible balance between national priorities, fiscal realities, and begins to reduce some of the risks we have accumulated because of deferred maintenance and sustainment. This budget supports my mission requirements, but there is no margin to absorb new risk. Any cuts to that budget will hamper our ability to sustain and modernize our military forces.

I thank you for this opportunity, and I look forward to your questions.

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

Mr. ROGERS. I thank you both for those opening statements. Now we will start with questions. I will recognize myself first.

For both of you, have both of you participated in a nuclear exercise to demonstrate how the people and systems would work if they are ever called upon?

Start with you, Mr. McKeon.

Mr. McKEON. Mr. Chairman, in my prior job in the White House, I took part in an exercise with the director of the White House Military Office. It was somewhere in 2013. I can't remember the date.

Mr. ROGERS. Admiral Haney.

Admiral HANEY. Chairman, I have participated in a number of exercises as part of my job, as a minimum once a quarter, but I can't tell you how many I have had.

Mr. ROGERS. On nuclear exercises, was it your experience that the people and systems performed as you expected in those exercises?

Admiral HANEY. Yes, Chairman, they did.

Mr. ROGERS. Mr. McKeon.

Mr. McKEON. Yes, they did. And part of the exercise that I was on was working on quality of the communications, and they actually performed better than we expected.

Mr. ROGERS. Good. Mr. McKeon, to your knowledge, in your tenure at NSC [National Security Council] and DOD [Department of Defense], has President Obama actually participated in such an exercise?

Mr. McKEON. I don't know the answer to that, Mr. Chairman.

Mr. ROGERS. Okay. Could you find out and let me know back at your convenience?

Mr. McKEON. We can check.

Mr. ROGERS. Admiral Haney, I call your attention to the charts on your TV screens to your left and right. These show the so-called acquisition bow wave in the Department of Defense. Is this a nu-

clear bow wave or does the Department have an acquisition bow wave across the services in practically every capacity? The chart may not be that helpful to you.

[The chart referred to can be found in the Appendix on page 71.]

Admiral HANEY. Chairman, I have seen a variety of charts relative to the need in our current plan in terms of needing resources in order to recapitalize and modernize our strategic forces. As you know, we have in many cases stretched out well beyond the life expectancy of many of our programs, and now we are at a point where we have to modernize various facets of our triad as well as our nuclear command and control capabilities.

So that is what is creating this bow wave of sort that is discussed in various things, such as the Congressional Budget Office reports and what have you, that quantify it thereabouts 5 to 6 percent of our associated expected departmental budget over those years.

Mr. ROGERS. Mr. McKeon, is the modernization of deterrent the highest priority of the Department of Defense?

Mr. McKEON. It is, yes. And the Secretary, I believe, has testified to that in the past.

Mr. ROGERS. Excellent.

We hear—and this is also for you—we hear some people saying that the need to have a debate on modernization of the triad. What are your thoughts on this? Has the administration not debated these issues? Has the President not made his decisions in Congress as well?

Mr. McKEON. Mr. Chairman, I think I have seen some of the comments you may be referring to, and those are interesting comments, but they don't reflect the policy of the President or the administration.

We have clear policy guidance from the Nuclear Posture Review, from the review on employment that was conducted early in the second term, and from the last Quadrennial Defense Review, and that guidance says we shall have a triad. And that is what we need to sustain and that is what we need to modernize. We won't be here for these investments—or at least I won't—in the next administration, but we are laying the foundation for the way ahead.

Mr. ROGERS. Excellent.

Admiral Haney, I noted your stated concerns about the idea of overflights of the U.S. by Russia with a new advanced electro-optical sensor. The treaty also allows the Russian Federation to overfly the United States with infrared and synthetic aperture radar sensors. If electro-optical capability is at risk, what of these even more advanced capabilities, are they a risk?

Admiral HANEY. Chairman, regarding the Open Skies Treaty, as we look at how technology has developed, it is not surprising to me that there would be a desire to use more advanced capabilities in order to conduct that Open Skies Treaty.

While I am concerned in terms of overflights of any ability of another nation to learn more about our overall critical infrastructure, I do have respect for said treaty in terms of the 32-some nations that are also part of that treaty, in which it allows for transparency and the ability of sharing immediately that information that that treaty is associated with.

So as we make these advances and as Russia is asked to apply additional capability, there is a process that is going through by which this is being assessed. And I feel that I have a voice in that process going forward here as we measure the pluses and minuses associated with that approach.

Mr. ROGERS. Well, you realize that Congress as policymakers are going to need to take those risks into consideration and we depend on you to give us a heads-up as to what you see is the most threatening of those risks. And that is why I asked the question.

With that, I will turn to the ranking member for any questions he may have.

Mr. COOPER. Thank you, Mr. Chairman.

Let me point out the obvious here, which is there is an astonishing national consensus in both parties, among most all people, that the triad is important; in fact, it is vital to our national security, and it is our duty to keep it safe, secure, and reliable. That includes all the life extension programs, upgrades, to keep that capability state of the art.

We almost should be thankful that we face a few rivals and would-be rivals in the area, because think of how difficult it would be to fund all this if there were none. So now we have something to complain about and also build support behind.

But it is our unquestioned superiority that is what we must maintain. And I am just thankful that there is such a bipartisan consensus on these issues and that the admiral can testify in favor of the President's budget request wholeheartedly.

I hope that this Congress will not only fund that amount, but actually find the real dollars to support it and not borrow that money, as we have for many other DOD expenditures.

Mr. McKeon, on a much, much smaller issue, the Cooperative Threat Reduction Program is an important program, and I understand that you would like to expound on some of the activities happening in North Africa regarding that program.

Mr. MCKEON. Mr. Cooper, thank you.

As you and I discussed briefly this morning in the office call, we have recently begun work on a Cooperative Threat Reduction Program in North Africa. As you know, this program had its roots at the end of the Cold War in the former Soviet Union, but over time it has expanded and Congress has given us the authority to expand this to other regions.

And its specific authority here is to address an emerging proliferation threat. And what we are embarking on is working with the Government of Tunisia to strengthen its border and security of its border with Libya, which is quite porous, a lot of people moving back and forth across it. You are probably aware of the strike we took in western Libya this weekend against several people in a camp, including a leader suspected of the Bardo Museum attack in Tunis last year.

So we think this is an important and urgent project because of the threat to Tunisia of terrorists moving across that border, as well as from ISIS [Islamic State of Iraq and Syria] and from AQIM [Al Qaeda in the Islamic Maghreb], in its western mountains. We have seen ISIS using sulfur mustard in Iraq and Syria, so it is not a leap to suggest they might undertake similar attacks in Libya.

And so we are very focused on trying to help the Government of Tunisia, which started the Arab Spring and seeks to build on a new democracy, and it is under threat from a lot of places.

Mr. COOPER. So this is an emerging threat on the Tunisian border to prevent Libyan WMD [weapons of mass destruction], not nuclear but chemical, from possibly crossing that border?

Mr. MCKEON. That is correct. And I should say, Mr. Cooper, we have done similar projects strengthening border with an eye toward the WMD issue in Ukraine in the last couple of years and in Jordan as well.

Mr. COOPER. Oh, I appreciate that clarification.

Mr. Chairman, I have no more questions at this time.

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

Mr. LAMBORN. Thank you, Mr. Chairman.

Thank you both for being here and for the work that you each do for our country.

Admiral Haney, it is always good to talk with you. Thank you for our earlier visit. And I would like to follow up on something we chatted about briefly earlier, and that is the JICSpOC [Joint Interagency Combined Space Operations Center]. And I am encouraged to see that you are using rapid acquisition authority for that and also to see that the GEON [GPS Enhanced Onboard Navigation] is in the budget request. When do you think the JICSpOC will be fully operational?

Admiral HANEY. Congressman Lamborn, thank you for that question. The Joint Interagency Combined Space Operations Center, JICSpOC, very important to me and your Strategic Command and I think to our Nation, particularly as we work right now through our experimentation process, which goes through this summer, such that we can look at refining CONOPS, concept of operations, which will further help define what we need for the future.

So we have completed a couple of those experiments, pretty elaborate, bring in professionals across our Department of Defense space as well as our Intelligence Community space, coming together, working in a synergetic way so that we can look at how do we have space indications and warnings, situational awareness, attribution capability, all the way to what to do about it if that occurs.

As such, this will take some time. I don't have a discrete timeline for you right now. We are working with the Office of Secretary of Defense, Joint Staff, and others in terms of providing those refined concepts of operation, which will further define that timeline. But I am encouraged that we have some capability just in where we have experimented if we needed to pull it together in a hurry to take matters at hand.

Mr. LAMBORN. Okay, thank you.

And for anyone who is unaware of what is happening here, it is just a way of integrating the DOD and the Intelligence Community so that they can look at space assets and what they have to offer together. In other words, the integration part is so critical there.

Do you see roadblocks going forward? And do you have all the authorities you need to make sure this capability gets fielded as rapidly as it needs to be?

Admiral HANEY. Congressman, as part of this, we are working through to really understand those authorities either we may need in heightened tensions and what have you, in that regard, as we work through various scenarios associated with it.

As of right this moment, I have the authorities I need in order to work through this concept. There may become a time in the future where additional authorities are required.

Mr. LAMBORN. And do you see any roadblocks on the way going forward?

Admiral HANEY. Right now, the biggest roadblock, I would say, is working to establish what frequently is called, like, a common operational picture, and how we can look at the dynamics, space situational awareness, in a more refined manner as we look at the threats that other nations are working in their counterspace programs. We are working on that, as you mentioned the GEON-type concept, as a team right now. But we have to get there, and we are working on helping to define that through this experimental phase of the JICSpOC.

Mr. LAMBORN. Okay. Thank you so much.

And I am going to shift gears completely. And this is kind of technical, but it is an important question that I have worked with staff on. The Air Force is completing its analyses of alternatives for the OPIR [Overhead Persistent Infrared] and AEH[F] [Advanced Extremely High Frequency] systems. Can you assure us that the analysis of alternatives will fully take into account your requirements, that is the warfighter requirements? And can you send us, send the committee written details on the AOAs when the AOAs are completed?

Admiral HANEY. Congressman, I would say yes to both questions. I work very closely with the Air Force and with the principal Department of Defense space adviser, Secretary James, as well as the Office of Secretary of Defense staff as we look at this going forward. But I am a teammate in terms of working the analysis of alternatives for those programs.

Mr. LAMBORN. Thank you so much.

Mr. ROGERS. The Chair now recognizes the gentleman from Nebraska, Mr. Ashford, for 5 minutes.

Mr. ASHFORD. Thank you.

Admiral Haney, thanks again for keeping me abreast and our office abreast of the issues that you are raising here today and other issues as we have been proceeding along. And thank you for your work at Offutt and at STRATCOM in our area. It is exemplary work and admired by everyone. So thank you.

I just want to, if I could, just reiterate what the chairman asked about the Open Skies issue. I did notice in our Omaha World-Herald today a discussion that you had had concerning that. And I would second the chairman's comments about, as we move forward, to be clear as to what we should or shouldn't do in regard to that. And also the fact that we do have missions from Offutt in the 55th that are part of that Open Sky, and so obviously have concerns about it in that regard. So anything you can do to keep us abreast would be great.

I have a question though, totally unrelated, really, I think to probably the budget, and we have had this conversation before.

And one of the concerns, very briefly, and we can talk about it further later, but this whole idea of standardizing cyber education and cybersecurity issues so that as this becomes more advanced and as the need for workforce in this area increases.

What are your thoughts generally about trying to come up with some kind of standardized way to train our cyber force, and as the threats are so dynamic, so frequently changing, that if we have some sort of standardized way to educate our people? Do you have any general thoughts on that?

Admiral HANEY. Congressman Ashford, first and foremost, the Department is working—Joint Staff is working—on an approach to ensure all of our employees, all of our workforce, all of our sailors, soldiers, airmen, marines, do have a basic understanding of what we call cyber hygiene in terms of their role, one as a sensor and reporting and understanding what types of things they see on cyber and get those reported to the necessary team that works that.

So you have standardization of the population as a whole and the workforce as a whole, then you have the standardization of the training associated with those that are at a higher level of working cyber defense and those types of operations for, for example, U.S. Cyber Command and the services and the work to ensure we have the necessary capability to protect the military systems and also to work to defend the Nation.

Mr. ASHFORD. As we reach out to the private sector in obtaining expertise as we move forward, do you feel work needs to be done in how we train those individuals so that they better understand the standards that are applied in the military? Do you see that evolving?

Admiral HANEY. I know a lot of the industry teams I talk to, et cetera, are very concerned about cyber as well. Across the country as a whole I think the knowledge of the threat is improving. I do believe we have a lot more work to go in that regard. And my commander for U.S. Cyber Command, Mike Rogers, has been involved in a variety of different areas in coupling together with other outside Department of Defense organizations in that regard.

Mr. ASHFORD. Thank you, Mr. Chairman.

Thank you, Admiral.

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

Mr. COFFMAN. Thank you, Mr. Chairman.

Mr. McKeon, you mentioned the Joint Interagency and Combined Space Operations Center, or JICSpOC, in your written statement. Can you briefly discuss how this effort contributes to space mission assurance?

Mr. McKEON. Congressman Coffman, this is a little bit of an operational experiment, as Admiral Haney said. It is for focusing on space situational awareness and coordination between ourselves and the IC [Intelligence Community]. And what they have been working on is, I think, a series of vignettes to sort of understand the operating picture and how we are integrating with our IC colleagues and even the private sector and some allies at some future point.

So it is still early days in it. The deputy secretary has focused a lot on this, and he has already gone out there to pay a visit to

it. I would defer to Admiral Haney to the other details he would have.

Mr. COFFMAN. Sure. Admiral Haney.

Admiral HANEY. Congressman, we have been working a bit on space mission assurance even before we had the JICSpOC. What is nice about the JICSpOC concept is it is really honing in our efforts and working as a team, as was mentioned here. The business, first and foremost, very complicated environment by which we are working in, and the key of integrating all of our combined efforts.

And that is why taking an interagency approach to this is very important in terms of being able to share, move information in a timely manner, and then have a more synergistic approach to the problem with both DOD and IC assets going forward, particularly as we look at what our adversaries—potential adversaries—are working toward, everything from jamming, lasing, terrestrial launch rockets into space, and on-orbit kind of capabilities.

Mr. COFFMAN. Sure. Admiral Haney—and then I will go to Mr. McKeon—we have heard a lot about the threats from North Korea and Iran in terms of missile threats. Can you comment on our missile warning posture in relation to these emerging threats?

Admiral HANEY. Congressman, with regard to missile warning posture, 24/7 I have service men and women that are manning stations, one, to very quickly report through our overall constellation of any launch that occurs anywhere on the planet. That information is moved quickly. It is backed up and verified by land-based radars in terms of things so that we can ascertain whether there is an attack against America or attack against an ally, or is it something we expect in a test, or what have you. And there is a process and a procedure that moves that information all the way through command centers, and what have you, in terms of things. So that piece, I think, works very well today.

Mr. COFFMAN. Do you have anything to add, Mr. McKeon?

Mr. McKEON. I don't have anything to add to that, sir.

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

Mr. ROGERS. I thank the gentleman.

The Chair now recognizes the gentleman from Washington State, Mr. Larsen, for 5 minutes.

Mr. LARSEN. Thank you, Mr. Chairman.

Mr. McKeon, the CBO [Congressional Budget Office] has estimated that the cost of maintaining nuclear weapons and delivery vehicles to be approximately about \$340 billion over 10 years. Is that an estimate that you agree with, the CBO estimate?

Mr. McKEON. Maintaining the current infrastructure now, including modernization, or just sustaining what we have?

Mr. LARSEN. I think that is including modernization.

Mr. McKEON. It is probably in the ballpark, Congressman. I think our sense of the modernization in the years ahead is between \$350 billion and \$450 billion.

Mr. LARSEN. Over the next 10 years?

Mr. McKEON. I think that is the number.

Mr. LARSEN. And somewhere around—although 30 years is a long way from now, we will probably all be gone by then—there is a trillion-dollar estimate from a lot of outside groups for over 30 years. Does that sound about right?

Mr. McKEON. I would have to check on that. It may include a lot of ongoing sustainment and operation. It is not just the recapitalization.

Mr. LARSEN. Sure. Okay. So the point I am getting at is the answer to your question earlier to Mr. Rogers about this being the highest priorities in the budget. If these are the highest priorities in the budget then, again, you mentioned you get to go—knocking on wood we get to stick around. What does that mean for the other priorities in the budget, without adding dollars or adding relatively more dollars, what does that mean longer term for budgets, defense budgets?

Mr. McKEON. Sir, it is clear that the future Congresses and future administrations face a big challenge with this. I think we discussed it a little bit in the hearing that Chairman Thornberry had last summer with the deputy secretary and the vice chairman, where we start in 2021, it is in the current Future Years Defense Program with the *Ohio* Replacement Program. And right now for the nuclear enterprise in DOD it is about 3 percent of the budget. It will grow to 5 or 6 percent during this recapitalization period, so it is doubling, but still not a huge part of the Department budget.

I think our leadership would say today, if we continue to see the fiscal constraints that are in place, Budget Control Act is still there, notwithstanding the 2-year relief from the balanced budget deal, we would probably need some top-line relief in the 2020s in order to accommodate this. But as Secretary Carter said, it is the top priority, so we need to figure out a way to pay for it.

Mr. LARSEN. I would just note a doubling of billions of dollars, even though it might be 3 percent to 5 percent, is a lot of money.

Mr. McKEON. Indeed.

Mr. LARSEN. Still a lot of money and still puts a lot of pressure on the rest of the budget. I just want to be sure we are clear about that.

Can you talk a little bit about the THAAD [Terminal High Altitude Area Defense] missile defense batteries and the discussion going on with South Korea and what we can expect. Is South Korea ready to incorporate that into their defenses? And if an agreement was signed today, actually how long would it take until a THAAD system could be even operational in the ROK [Republic of Korea]?

Mr. McKEON. As you know, we recently announced with our Korean partners, consultations on deploying THAAD to the Republic of Korea. And I think there is a formal meeting next week General Scaparrotti mentioned in his testimony this morning. And I think probably the long pole in the tent is the site, the land for the battery. And I don't know how long that would take to come to an agreement with the Koreans on the funding for that.

I think once we had it in place, I don't think it would take very long to deploy it. We have the battery available. So I think that would be the main issue in the near term.

Mr. LARSEN. Admiral Haney, you spoke a little bit this morning, I just want to get your feedback again on a recent GAO [Government Accountability Office] report that found that overlapping testing and acquisition of additional interceptors for Alaska risk compromising the reliability of the system. And I want to know how

much you would agree with that analysis, if at all; and then related, are you concerned about the deterrent capability of that system as a result?

Admiral HANEY. Congressman, I think it is very important relative to that report that we are able to populate our missile fields up to that 44 number by 2017, which is the plan. And as I look at the priorities for missile defense, it is also very important that we are able to conduct the necessary testing so that we can have a most reliable kill vehicle as well as discrimination. So getting to the long-range discriminating radar is important for a future, and in looking at the other alternatives so that we can work that cost curve associated with our approach per missile so that we can be even better as a deterrent.

Mr. LARSEN. Thanks.

I think that is good for me for now. Thanks. Yield back.

Mr. ROGERS. The Chair now recognizes the gentleman from Oklahoma for 5 minutes.

Mr. BRIDENSTINE. Well, thank you, Mr. Chairman.

And thank you, gentlemen, for being here and testifying before our committee.

Admiral Haney, I wanted to talk to you for a second about the JSPOC [Joint Space Operations Center]. We have had opportunities to talk about it. We have heard testimony on this committee from General Raymond, when he was JFCC Space [Joint Functional Component Command for Space], that space is getting more contested, more congested. And one of the challenges they have at the JSPOC is doing all of the conjunction analysis and reporting not only for DOD purposes but also for all the commercial operators and foreign operators.

And as this continues, the burden is getting bigger and bigger. And I would like to hear from your perspective, do you believe this burden is going to continue to grow with all the commercial activities and foreign activities in space?

Admiral HANEY. I absolutely do think the activities in space will continue to grow, which ultimately means the activities that our Joint Space Operations Center there in Vandenberg, California, that works space situational awareness from that point, absolutely, will continue to grow.

Mr. BRIDENSTINE. We have also heard testimony from General Hyten and General Raymond about not wanting the DOD to be the FAA [Federal Aviation Administration] for space. Is that a concern that you share as the commander of STRATCOM?

Admiral HANEY. Well, I think when we say we don't want to be the FAA for space, what does that mean? When I hear that, what is really being discussed is that is in the bin of what I call space traffic control, in terms of things.

As the Department of Defense with critical capability in space, we don't get a pass, we have to understand space situational awareness. And I would say as the years go on, giving where potential adversaries are investing in counterspace capability, we are going to have to have even better space situational awareness capability, data fusion capability, et cetera. And this is some of the work that is ongoing here as we experiment in the JICSpOC, the Joint Interagency Combined Space Operations Center.

Mr. BRIDENSTINE. Right. So the concern I have is that as we continue moving forward with all of the activities—we have heard, you know, OneWeb is launching a constellation of 800 satellites into low-Earth orbit [LEO], SpaceX is talking about a constellation of 4,000 satellites into low-Earth orbit—it seems at some point, I think everybody agrees, we have got to make sure that the DOD is the number one entity in the world when it comes to space situational awareness, not only taking advantage of all of our sensors and our software, but also taking advantage of what commercial is doing in integrating commercial capabilities, and even what foreign countries are doing, that are our partners and allies integrating that as well.

My concern is that we could lose focus by really taking up a lot of our manpower resources to do conjunction analysis when there are two, say, commercial communication satellites in LEO, which isn't really the case these days but in the future will be, that conjunction analysis in mass volumes could really burden the JSpOC in the future. And I just want to make sure that that is something that you are thinking about as the commander of STRATCOM as we move forward.

Admiral HANEY. Absolutely, Congressman. I would just say, as we look at this, and like you said, as Space Fence comes on board here, the amount of data will come up, et cetera, but there are certain attributes that have to be done even from a space traffic control as well as space situational awareness. And with it, we have to have information assurance. Data protection has to be part of that as we go forward. And with it we have to have automation and better fusion capability.

So however we do it in the future, those are the attributes. We are clearly working and definitely thinking about that going forward.

Mr. BRIDENSTINE. I am running out of time here, but I just want to get this, maybe you can respond in writing at some point. When we go forward with the future communication architecture, one of the challenges we have on this committee is not getting an accurate assessment of SATCOM [satellite communications] utilization.

What percentage of our SATCOM, how much gigabits per second or gigabits in general are flowing through commercial vice military, and which commercial satellites are carrying most of the capacity, and in what regions? And do we have any underutilized capacity? Are we purchasing capacity beyond what we need? Maybe there are areas where we don't have enough capacity.

So just getting an accurate assessment of SATCOM utilization would be very valuable for us. And I know that is one of the missions of STRATCOM and very much appreciate if we could get an update there.

Admiral HANEY. Absolutely, Congressman Bridenstine.

[The information referred to can be found in the Appendix on page 75.]

Mr. BRIDENSTINE. Thank you, Admiral.

Mr. ROGERS. Thank the gentleman.

The Chair now recognizes the gentleman from Montana, Mr. Zinke, for 5 minutes.

Mr. ZINKE. Thank you, Mr. Chairman. I appreciate the opportunity to be with your committee today.

Admiral, my background is as Navy SEALs [Sea, Air, Land teams]. And I have spent a lot of time looking at security, and recently I went out to Malmstrom Air Force Base. And I am concerned about the UH, the helos, particularly the Vietnam-era Hueys. From talking to folks on the ground looking at it, and I concur, these are aging helicopters, as well as they don't have the lift and capacity. And if they do get an alert situation, they just don't have the hover time and the distances in Montana and I assume Minot. And I understand that you did go out to exercise Mighty Guardian recently. Do you share my same concerns about the Hueys?

Admiral HANEY. Congressman, absolutely, in terms of thinking very crisply associated with what we need to do to improve security of our missile fields, and part of that effort has included looking at those UH-1s and working with the Air Force and Joint Staff in terms of our methodology going forward.

So I know the Air Force has a plan now by which they plan to work to replace those helicopters, but the attributes you listed are the attributes that concern me in terms of the capability, not just now, but into the future.

Mr. ZINKE. Well, Mr. Chairman, I would like to enter into the record a response from the Secretary of the Air Force to Chairman Rogers. In it, reading through it, she notes until we replace the Hueys, it is not going to be possible to meet the alert requirement in that letter.

[The information referred to can be found in the Appendix on page 72.]

Mr. ZINKE. Are you familiar with the letter, Admiral?

Admiral HANEY. I am not exactly sure which letter you are talking about. I am understanding of the requirements associated with what we need the security helicopters to do.

Mr. ZINKE. You would concur, though, that it is a priority to make sure we have an alert requirement and that the teams that are operating have the right aircraft and the right capacity and lift?

Admiral HANEY. Absolutely, sir.

Mr. McKEON. Congressman, if I could interject, the deputy secretary is very focused on this, and we have had discussions about an interim solution until the Air Force procures the replacement. So we don't have a solution yet, but it has gone up to the deputy and we will meet Admiral Haney's requirement.

Mr. ZINKE. I do sit on the seapower side of it, and I know that we looked at, as the Navy moves around their helicopters, their MH-60s, to see whether or not it would be possible to trans-deck some of those, and it doesn't seem possible. So I think the solution is to look at maybe perhaps the Army contractor, find a vehicle where we can get you the right helicopter replacement.

I came in the service in 1985. I remember the Hueys. But I haven't flown on a Huey since the mid-1990s. I was surprised when I went out there and saw them. They are an aging aircraft, but they just don't have the lift. Montana has got a lot of expanses, let alone the weather, and then just the lift capacity. If they do get in

trouble, they just don't have the lift to get the right people out there and stay in station.

Sir.

Mr. McKEON. I was just going to say, I have ridden the ones at F.E. Warren. They run very well. And the people who maintain them know how to maintain them, and they have a high operational readiness rate. But they are very old, as you say, and there is the weight issue.

Mr. ZINKE. Thank you for your service, sir.

I yield the remainder of my time.

Mr. ROGERS. I thank the gentleman. His letter will be taken into the record, without objection.

Mr. ROGERS. And you know, I am glad to hear, Secretary McKeon, that you have said that you all have taken that up, because it is something that I have put a lot of attention on, as has the ranking member. We are very concerned about seeing those helicopters replaced, and I hope that you can help the Air Force stop being so worried about being sued and start making the right decisions and the other stuff will work itself out.

I just wanted to go back before I close out, the topic that I was talking about with you, Admiral Haney, before I yielded to the ranking member for his questions, and that goes back to this Open Skies issue. Can you discuss with us in this open setting what exactly the Russians are overflying as far as infrastructure and what they are getting out of those flights?

Admiral HANEY. Chairman Rogers, I think that might be better discussed in a closed hearing in terms of things. But they follow a flight plan and they fly over the United States. We know where they are going to go, that sort of thing, that covers a lot of areas. It is a transparency treaty, so likewise we work with those other 30-some nations to also likewise fly over Russian areas.

Mr. ROGERS. Well, I will ask you in the closed session then.

What about this, can you talk about this in the open setting: Do you know how Open Skies fits into the Russian overall collection strategy?

Admiral HANEY. Well, I don't have the Russian intelligence guidebook available to me, but I will say that given the lack of overhead capability that the Russians have, Open Skies gives them a capability to be able to reconnoiter parts of our country and other nations as part of that.

Mr. ROGERS. Okay. That is all I have got.

I yield to the ranking member for any additional questions he may have.

Mr. COOPER. Thank you, Mr. Chairman. I am going to wait till the classified session.

Mr. ROGERS. Okay. Then I will go to Mr. Larsen from Washington State. I understand he has another set of questions.

Mr. LARSEN. Yeah, just one question, and this is to give some context for tomorrow. We have the full committee as General Breedlove is coming to testify. So I wanted to hear from both of you, you can choose which one goes first, what would be your recommendations in response to Russia's noncompliance with the INF Treaty, thinking specifically the INF Treaty, but also broadly.

Mr. McKEON. Congressman Larsen, I spent a good deal of time in December in this room with your colleagues and the colleagues on the House Foreign Affairs Committee on this issue, so I would refer you for an in-depth discussion there. But in brief, what we have done is looked at Russia's activities, not just in regard to its violations of the INF Treaty but its other behavior in Europe and its fairly belligerent rhetoric, and made a number of investments in the defense of Europe and in technologies that will be utilized in Europe against the A2/AD [anti-access/area denial] challenge that Russia poses, including because of their development of this noncompliant INF missile.

So we are putting a lot of thought, work into it at EUCOM [European Command] and in the Department, and a lot of resources to respond to what we see as a much broader Russian challenge, not just in its behavior in INF but what they have done in Ukraine, some of the rhetoric. And there are some other treaties where we have compliance concerns including the Open Skies Treaty.

If I could amend briefly the answer before, Mr. Larsen, and we will get you a written answer. I may have misspoken. Our understanding is the \$350 billion to \$450 billion estimate is for modernization over more than a decade. But I will clarify that for the record.

[The information referred to can be found in the Appendix on page 75.]

Mr. ROGERS. All right. With that, we will recess for 5 minutes while we move to room 2216 for the closed portion of this hearing.

[Whereupon, at 4:28 p.m., the subcommittee proceeded in closed session.]

A P P E N D I X

FEBRUARY 24, 2016

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

FEBRUARY 24, 2016

Chairman Rogers Opening Statement
Feb 24 Hearing, “U.S. Strategic Forces Posture”

I call to order today’s hearing of the House Armed Services Subcommittee on Strategic Forces.

Today we are focused on the “U.S. Strategic Forces Posture” and we have again this year a tremendous pair of witnesses:

- The Honorable Brian McKeon
Principal Deputy Under Secretary of Defense for Policy
Department of Defense
- Admiral Cecil Haney
Commander
U.S. STRATCOM

I want to thank the witness panel for the time it takes to prepare for today’s testimony. The subcommittee appreciates the seriousness with which you have prepared for this hearing and I assure you we approach our responsibility to provide oversight, policy, and funding authorization for the nation’s nuclear deterrent, missile defense, and national security space systems and capabilities with the same seriousness.

Your testimony will directly inform the policy and funding authorization decisions we make in the coming weeks.

These three mission areas could not be more important – indeed, existential – to the nation’s security.

Admiral Haney, I noted your recent appearance at the Center for Strategic and International Studies when you stated, “[w]e 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.”

Adm. Haney, I hope you repeat this point as often as you can. Too many in the public policy and advocacy machine in this city either aren't aware of this fact or willfully choose to ignore it.

We can't help those who willingly choose ignorance, but we shouldn't give up on those who aren't aware of the basic facts.

Mr. McKeon, I know you spent a significant amount of time and energy on the Department's Nuclear Enterprise Review in 2013. I am eager to hear how you are ensuring the momentum achieved during this review is maintained, especially as we see key recommendations, like the replacement of the Vietnam-era missile field security helicopters, languish in red tape in the Air Force and the Joint Staff.

And, I know I don't have to tell you, but I feel it is essential that the American people are aware, of the increasing threat we face in outer space. We are facing serious and growing foreign threats to our space systems.

We will need to work closely with STRATCOM and OSD to ensure the war fighter has the capabilities and authorities to fight and win should a war extend to space.

With that, I recognize the gentleman from Tennessee, Mr. Cooper, for any opening statement he wishes to make.

Not for Public Release until Approved by the
House Armed Services Committee

STATEMENT OF
BRIAN P. MCKEON
PRINCIPAL DEPUTY
UNDERSECRETARY OF DEFENSE FOR POLICY

BEFORE THE HOUSE
ARMED SERVICES
SUBCOMMITTEE ON STRATEGIC FORCES
FEBRUARY 24, 2016

Chairman Rogers, Ranking Member Cooper, members of the Subcommittee, thank you for the opportunity to testify on the Fiscal Year (FY) 2017 Budget Request for Strategic Forces. I am grateful for your consistent attention to and continuing support of the critical mission of nuclear deterrence and nonproliferation.

SECURITY ENVIRONMENT

Earlier this month, Secretary Carter identified five current and evolving security challenges that have driven the focus of the Defense Department's planning and budgeting this year. Each has implications for our current and planned strategic capabilities and posture.

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. China is introducing qualitative advances into its nuclear and conventional military capabilities as it continues its rise in the Asia-Pacific region.

Russia poses one of our most pressing and evolving strategic challenges – challenges felt across the strategic forces mission space. 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, which eliminated an entire class of U.S. and Russian weapons nearly three decades ago, and Russia 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 should not be viewed in isolation from its overall aggressive behavior and, therefore, our responses also should not focus solely on the INF Treaty. Instead, the Administration must take a holistic approach to Russia's actions, integrating

responses across all instruments of national power. 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.

North Korea's evolving nuclear weapons and missile programs pose a continuing threat to the United States and our allies and partners. Last month, North Korea conducted its fourth nuclear test, and earlier this month, it conducted a ballistic missile launch that successfully placed a satellite into orbit. In response to the evolving threat posed by North Korea, 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). Iran's ballistic missile program is the largest in the Middle East, and we must continue to enhance our ability to defend against the regional ballistic missile threat Iran poses today and may pose in the future. As Secretary Carter reiterated, the nuclear deal does not in any way constrain or inhibit our ability to defend the United States and our allies and partners.

Finally, denying terrorists access to weapons of mass destruction (WMD) and weapon-usable materials is an absolute imperative in the ongoing fight to defeat terrorist organizations.

FY 2017 BUDGET SUPPORTS ABILITY TO MEET CHALLENGES

The overall mission of U.S. strategic capabilities is to protect the United States and our allies and partners from attacks that would directly threaten our vital interests. This includes deterring nuclear and other WMD attacks and being prepared to respond in the event that deterrence fails. Second, it means denying States like North Korea and Iran the ability to effectively threaten ballistic missile strikes against the United States and our allies and partners. Third, it involves preventing the further spread of nuclear weapons and other WMD. Finally, it includes protecting and defending our access to and use of space and cyberspace.

The President's FY 2017 budget request and Future Years Defense Program (FYDP) contain critical investments in each of these four areas. In doing so, they support our ability to meet current, emerging, and future strategic challenges and threats.

SUSTAINING EFFECTIVE NUCLEAR DETERRENCE

Although the President's ultimate goal is a world without nuclear weapons, he has been consistent and clear in his commitment to maintain a safe, secure, and effective nuclear arsenal for as long as nuclear weapons exist. This is the highest priority of the Department of Defense (DoD). 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 respond to and address current and potential threats.

To ensure the effectiveness of our nuclear deterrent, we must maintain the military capabilities required to implement U.S. deterrence strategy. But the nuclear deterrent is more than just a set of military capabilities, and effective deterrence is more than sustaining that set of

capabilities. Effective deterrence also requires that planning, exercises, and force posture support the U.S. deterrence strategy, preserve its credibility, and reinforce strategic stability. In addition to providing for our own defense, sustaining effective extended deterrence and assurance is necessary to honor our alliance commitments and support our nuclear nonproliferation objectives.

NUCLEAR SUSTAINMENT AND MODERNIZATION PLAN

The President's nuclear sustainment and modernization plan focuses on preserving the military capabilities of our current nuclear Triad and Dual-Capable Aircraft (DCA) in the face of evolving threats and a dynamic security environment. Our approach to meeting the range of challenges we now face or might face in the future includes maintaining a deterrent that is robust and stable, rather than one that is necessarily reactive to every action of potential adversaries. The Triad and DCA provide a diverse range of nuclear explosive yields and delivery modes that underwrites strategic stability and serves to convince Russia and other potential adversaries that they cannot escalate their way out of a failed conventional aggression. Sustaining this diverse range of deterrent capabilities avoids the need to respond symmetrically to every Russian provocation, or to mirror every potential adversary, system-for-system and yield-for-yield.

The FY 2017 budget request focuses on maintaining stable and robust deterrence in a time of geopolitical uncertainty while managing the transition to a modernized nuclear force via Life-Extension Programs (LEPs) for warheads, replacement of aging delivery systems, and enhancements to sustainment and operations of the current force. It also includes the funding necessary to continue addressing the findings of the Nuclear Enterprise Reviews.

Our plan is consistent with the Administration's policy of a reduced role for nuclear weapons in U.S. defense strategy and retains only those capabilities we need to sustain stable and effective deterrence. It is not, as some have claimed, a nuclear weapons buildup. On the contrary, the number of nuclear weapons in the United States is the smallest it has been since the Eisenhower Administration, and we continue to reduce the number of deployed strategic weapons as we approach the February 2018 deadline for adherence to the central limits of the New START Treaty. We have reduced from 23 nuclear warhead types at the end of the Cold War (in 1990) to 12 warhead types today, and the B61-12 LEP is on track to allow us to reduce further to six warhead types by the mid-2020s.

The effort to modernize our delivery systems and extend the life of our warheads across the Triad and our nonstrategic nuclear force will require significant resources over the next decade and beyond. But this critical investment is affordable if prioritized appropriately by the DoD, Congress, and the Nation.

The B61-12 LEP will provide the sole gravity bomb to sustain our strategic and nonstrategic air-delivered nuclear deterrent capability by consolidating four existing variants of the B61. In addition, the megaton-class B83 strategic gravity bomb will be retired from the stockpile once confidence in the B61-12 is attained. Along with fewer weapon types, the end result will be significantly fewer weapons and lower net explosive yield in the stockpile. The B61-12 LEP will sustain our ability to forward-deploy nuclear weapons with fighter aircraft as well as strategic bombers, and is critical for sustaining our extended deterrent commitments in Europe. It will also retain the unique flexibility for the President that gravity bombs provide through the option of redirecting or recalling up to the moment of weapon release above a target.

The Long-Range Stand-Off (LRSO) cruise missile will replace the air-launched cruise missile (ALCM) as the United States' only air-launched, long-range standoff nuclear capability. A LEP for the ALCM's W80 warhead will allow for its use in the LRSO. By ensuring the President retains credible response options across a broad spectrum of crises, the LRSO will strengthen our ability to effectively deter deliberate escalation and limited nuclear attack. Having an air-launched cruise missile complements the capability of the current and future penetrating bomber force by extending its range and severely complicating the adversary's air defense problem. Without the ALCM capability, our only air-delivered nuclear response option would require bombers to fly over their targets, bringing increased mission risk.

The Long-Range Strike Bomber (LRS-B) will preserve U.S. air dominance against next-generation capabilities and advanced air defense environments and is required for both nuclear and conventional missions. The FY 2017 budget request includes funding to continue the development of an affordable, long-range, penetrating aircraft that incorporates proven technologies. Like the LRS-B, the F-35 program will deliver capability that is needed for both the conventional and nuclear missions. The FY 2017 budget includes funding for Block 4 of the F-35 program, in addition to research and development funds for a nonstrategic nuclear capability for the aircraft.

The Air Force conducted a Ground-Based Strategic Deterrent (GBSD) Analysis of Alternatives (AoA) in 2014 to study the full range of concepts to recapitalize the land-based leg of the Triad beyond the extended service life of the Minuteman III missile. The 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. The FY 2017 budget continues to fund preparatory GBSD development work.

Additionally, the Air Force and Navy are investigating areas for intelligent commonality between potential GBSD systems and future Navy weapons.

The OHIO Replacement Program requires adequate resources and a stable, predictable funding profile to ensure an on-time construction start in FY 2021 and to meet the ballistic missile submarine (SSBN) deterrence patrol need date of FY 2031. The OHIO Replacement Program submarines will have a service life that will enable patrols into the 2080s. This new class of submarines will remain survivable even as adversary anti-submarine warfare technology advances and proliferates. I want to underscore, however, that we are stretching the current OHIO class submarines to the limit, and there is no margin left in the schedule. Simply put, we cannot let the OHIO Replacement Program system slip any further.

The FY 2017 budget funds multiple nuclear command, control, and communication (NC3) upgrades. The Department continues to prioritize resources to address known capability gaps while incrementally building toward a fully modern NC3 architecture that will ensure timely and cybersecure decision-making support for the President.

MISSILE DEFENSE

The FY 2017 President's Budget funds the development and deployment of robust ballistic missile defense (BMD) capabilities to protect the U.S. homeland, deployed forces, and our allies and partners.

On February 7, North Korea's most recent Taepodong (TD)-2 launch provided another example of the importance of BMD in its role to protect the U.S. homeland. North Korea continues to pursue intercontinental ballistic missile (ICBM)-class ballistic missile technology that could threaten the U.S. homeland, in clear violation of multiple UN Security Council

resolutions. Its provocative behavior underscores the need to maintain our commitment to increase the number of deployed Ground-Based Interceptors (GBI) to 44, develop the Redesigned Kill Vehicle (RKV), and proceed with the development of the Long-Range Discrimination Radar (LRDR). The President's Budget for FY2017 funds all of these actions. When combined with the planned GBI reliability and system engineering improvements, they will enable the homeland missile defense system to address the maturing ICBM threat from North Korea and a potential ICBM threat from Iran.

As North Korea and potentially Iran make progress on ICBM-class missile technologies, the United States must be prepared to address new, more complex threats in the next decade. To that end, the FY 2017 President's Budget requests funding for investments in new technologies, including directed energy and Multi Object Kill Vehicle. Making progress on these technologies, as well as adapting current technologies to new purposes, will enable us to meet the advancing threat and lower the cost of intercepting ballistic missiles.

The FY 2017 President's Budget also reflects the DoD's commitment to building regional missile defenses that are interoperable with systems deployed by international partners.

The DoD continues to implement the European Phased Adaptive Approach (EPAA), which is designed to protect U.S. deployed forces and allies in Europe from ballistic missile attacks from the Middle East. In December 2015, the Missile Defense Agency declared the Aegis Ashore missile defense system in Romania technically capable of defending against Iranian ballistic missiles. The budget request also supports the implementation of Phase 3 of the EPAA, including the upcoming groundbreaking at the Aegis Ashore site in Poland, which will be completed in the 2018 timeframe.

In the Middle East, the Department continues to maintain a robust missile defense posture and support the development of a regional missile defense architecture with the Gulf Cooperation Council, starting with the acquisition of an interoperable Ballistic Missile Early Warning system. This budget request supports efforts with Israel to ensure its qualitative military edge in BMD and rocket defense systems, including David's Sling, Arrow, and Iron Dome. In the Asia-Pacific region, we continue to work with our allies and partners to enhance our missile defense capabilities against the ballistic missile threats in the region in a more comprehensive and interoperable manner.

NONPROLIFERATION

Today's complex security environment has made countering WMD threats even more challenging and multi-dimensional. We face WMD threats from state and, increasingly, non-state actors with enhanced access to the knowledge and technology necessary to achieve their objectives. It is critical to prepare for these emerging challenges, including WMD-related threats evolving from the application of advanced technologies such as additive manufacturing, unmanned systems, synthetic biology, nanotechnologies, and cyber tools.

In particular, it is essential to deny terrorists and other non-state actors with malevolent intent access to WMD-related materials. Based on available information, we believe that the Islamic State of Iraq and the Levant (ISIL) was likely responsible for some of the alleged attacks using sulfur mustard over the past year in Iraq. We have been working proactively with our allies and partners in the region to deny ISIL and other non-state actors access to chemical, biological, radiological, and nuclear (CBRN)-useable materials and expertise, to strengthen security at facilities containing dangerous materials that are at risk of theft or diversion, and to enhance

border security to prevent the proliferation of CBRN materials. In the nuclear and radiological areas, we work in close coordination with our colleagues at the Department of Energy.

The DoD Cooperative Threat Reduction (CTR) Program has a decades-long track record of working with foreign partners to destroy existing WMD successfully; to make nuclear, chemical, and biological weapons more difficult to acquire; and to detect and interdict dangerous WMD components and materials. Over the past year, the DoD CTR Program worked with a number of key partners to advance their capabilities to detect and interdict WMD material. Examples include train and equip programs in Ukraine, border security programs in Jordan, and implementation of an integrated command and control and surveillance system in Lebanon. The DoD CTR Program also seeks to assist partners in proactively confronting emerging WMD-proliferation risks in regions such as in North Africa. In response to the use of chemicals as weapons in Iraq and Syria, coupled with the growing encroachment of extremist groups, the DoD CTR Program has initiated proliferation-prevention cooperation with the Government of Tunisia along the Tunisia-Libya border, with plans to implement a WMD proliferation prevention border-surveillance system along the most vulnerable section of that border in late FY 2016 or early FY 2017.

In close partnership with the Department of State (DOS), we support international regimes such as the Nuclear Non-Proliferation Treaty (NPT), the Biological and Toxin Weapons Convention (BWC), and the Chemical Weapons Convention (CWC) to prevent the development and proliferation of WMD materials. We also complement the efforts of the State Department and other departments and agencies to engage 104 other partners in preventing WMD proliferation through the Proliferation Security Initiative, now in its 13th year.

Along with our efforts to prevent, reduce, and contain WMD threats; DoD must also be prepared to respond to potential WMD-related crises when and if they unfold, through a range of diplomatic and military options. DoD will also continue to support U.S. diplomatic efforts addressing WMD crisis management and response in North Korea, and will remain vigilant in supporting U.S. and international efforts to monitor and prevent Iran from acquiring WMD-related material, should Iran seek to abrogate the terms of the Joint Comprehensive Plan of Action.

NATIONAL SECURITY SPACE

As the 2014 Quadrennial Defense Review notes: “military operations depend on freedom of access in space, making security in this domain vital to our ability to project power and win decisively in conflict.” In his worldwide threat assessment testimony earlier this month, the Director of National Intelligence said that “Russia and China understand how our military fights and how heavily we rely on space. They are each pursuing destructive and disruptive anti-satellite systems. China continues to make progress on its anti-satellite missile program.” Thus, while space offers our forces tremendous advantages, sustaining deterrence requires that we maintain levels of space mission assurance commensurate with our reliance on space and thereby deny adversaries the benefits they might otherwise hope to gain by attacking our space capabilities.

To that end, the Department conducted a portfolio-wide strategic review of our space systems focusing on how we assure U.S. space capabilities in light of current and future threats. The results included significant new adjustments in the space budget starting with last year’s space portfolio and continuing for FY 2017. Additionally, we are strengthening governance of

the DoD space enterprise by designating the Secretary of the Air Force as the Principal DoD Space Advisor, with increased oversight authorities across DoD, and with an independent voice in providing assessments and recommendations to the Secretary of Defense and the Deputies' Management Action Group. Similarly, at Air Force Space Command and at U.S. Strategic Command respectively, we have established a Joint Interagency and Combined Space Operations Center and a Joint Space Doctrine and Tactics Forum that are allowing us to experiment with new operational concepts across the national security space enterprise, establish a culture within the DoD space community that recognizes that terrestrial conflict will extend into space, and develop new operational concepts and associated tactics, techniques and procedures required for future space operations.

Our national security is inextricably linked to long-term sustainability of outer space for military as well as commercial space mission assurance. We must continue our efforts to deter a conflict that extends to space as well as be prepared to defeat efforts to attack our space systems in such a conflict if deterrence fails. To that end, in fiscal year 2016, we added over \$5 billion in new investments over the FYDP to posture for a contested space environment. In the FY 2017 budget request, we are sustaining that commitment by strengthening our ability to identify, attribute and negate threats to our space systems; improving the resilience and mission assurance of U.S. space assets through all phases of conflict; and protecting our forces and our allies from intentional and irresponsible acts in space.

CONCLUSION

The President's FY 2017 Budget Request supports our nuclear, nonproliferation, and space strategies for protecting U.S. vital interests. It increases funding for sustaining and modernizing our nuclear forces to ensure a safe, secure, and effective deterrent for as long as

nuclear weapons exist. Those same capabilities that provide for our defense also extend deterrence to and assure U.S. allies and partners, contributing in turn to our nonproliferation policy objectives. Sustaining stable and robust nuclear deterrence and missile defense capabilities allows a steady approach to the persistent and evolving strategic challenges we face today and will face in the years to come. We request the Committee's support for this budget.

Thank you for the opportunity to appear before you today. I look forward to your questions.

Brian P. McKeon
Principal Deputy Under Secretary of Defense for Policy

Brian P. McKeon was confirmed as the Principal Deputy Under Secretary of Defense for Policy on July 28, 2014. He is responsible for advising the Under Secretary of Defense for Policy and the Secretary of Defense on all matters pertaining to the development and execution of U.S. national defense policy and strategy.

Previously, Mr. McKeon served as Deputy Assistant to the President, Executive Secretary of the National Security Council (NSC), and Chief of Staff for the National Security Council staff at the White House, a position he held from 2012-2014. In this position, he was the Chief Operating Officer for two National Security Advisers, managing all administrative, budget, and personnel matters for the NSC staff. Prior to joining the NSC staff, Mr. McKeon served as the Deputy National Security Advisor to the Vice President from 2009 to 2012, where he advised Vice President Biden on all national and homeland security matters.

Before serving in the Executive Branch, Mr. McKeon was Chief Counsel for the Democratic members of Senate Foreign Relations Committee from 1997 to 2009; he served concurrently as Deputy Staff Director from 2007 to 2009. In addition to helping to manage the Committee's agenda and staff, he played a lead role on nominations, treaties, the management and operations of the Department of State, and was deeply involved in a broad range of regional and functional issues.

Mr. McKeon served as a law clerk to U.S. District Judge Robert G. Doumar of the Eastern District of Virginia in 1995 to 1996. Earlier in his career, he worked for Senator Joseph R. Biden, Jr. in various capacities from 1985 to 1995, including seven years as a Legislative Assistant for Foreign Policy and Defense.

Mr. McKeon received a B.A. in Government and International Studies from the University of Notre Dame and a J.D. from the Georgetown University Law Center.

HOUSE COMMITTEE ON ARMED SERVICES
SUBCOMMITTEE ON STRATEGIC FORCES

STATEMENT OF
ADMIRAL C. D. HANEY
COMMANDER
UNITED STATES STRATEGIC COMMAND
BEFORE THE
HOUSE COMMITTEE ON ARMED SERVICES
SUBCOMMITTEE ON STRATEGIC FORCES
24 FEBRUARY 2016

HOUSE COMMITTEE ON ARMED SERVICES
SUBCOMMITTEE ON STRATEGIC FORCES

INTRODUCTION

Chairman Rogers, Ranking Member Cooper and distinguished members of the committee, I am honored to be here today. Thank you for the opportunity to provide testimony on the posture of United States strategic forces, my assessment of the President's Fiscal Year 17 (FY17) Budget, and how United States Strategic Command (USSTRATCOM) is confronting today's complex global security environment. I am also pleased to be here with Principal Deputy Under Secretary of Defense for Policy, Brian McKeon. I thank you all for your continued support to our Nation's defense.

I have the privilege of leading a motivated team of strategic warriors focused on mission excellence. While today, the Nation's strategic nuclear deterrent force remains safe, secure, effective and ready, we are working diligently to improve the resilience, responsiveness, credibility and flexibility of our operational plans and capabilities. USSTRATCOM is focused on deterring strategic attack, providing assurance to our allies and partners, and providing warfighting solutions to other Combatant Commands and partners across the spectrum of operations. While executing our global responsibilities, we continue to forge enduring partnerships with agencies and organizations across the U.S. government, academia, commercial industry, and Allied nations.

The momentum we have established is largely due to those who dedicate themselves to national security in spite of uncertainty and resource challenges: the Soldiers, Sailors, Airmen, Marines, and civilians who carry out and support our strategic missions. Thank you for the opportunity to publicly acknowledge their service, devotion and professional skill.

Over the last two years, I have gained considerable insight regarding the progress and work remaining to deliver comprehensive strategic deterrence, assurance and escalation control.

My focus here is to provide clarity, make recommendations on required steps for continued success, and demonstrate how USSTRATCOM supports strategic stability and national security.

Much remains to be done to sustain and modernize the foundational nuclear deterrent force that we need to protect the Nation from existential threats in an increasingly uncertain and unpredictable environment. We must continue to meet critical investment timelines to ensure that aging platforms and weapons systems do not reach the point at which their viability becomes questionable.

The President's Budget offers a balanced approach to national priorities and fiscal realities, and reduces some accumulated risk as we pursue modernization across USSTRATCOM mission areas. The Bipartisan Budget Act of 2015 provided near-term fiscal stability for these critical missions, and we appreciate Congressional and White House support in this effort. I support continued bipartisan efforts to achieve long-term relief from the constraints imposed by the Budget Control Act of 2011, especially given the multi-year acquisition timelines required to modernize our strategic systems.

Maintaining and improving comprehensive strategic deterrence, assurance and escalation control requires a multi-faceted, long-term approach to investing in strategic capabilities and a renewed, multi-generational commitment of intellectual capital. As I look at trends in the security environment, continued long term investment is needed to ensure that current progress transitions into long-term success. Our allies and adversaries are observing and assessing the fiscal emphasis placed on our Nation's strategic deterrence and assurance capabilities. We cannot afford to send mixed messages on their importance by underfunding them.

GLOBAL SECURITY ENVIRONMENT

Today's global security environment is complex, dynamic and volatile; perhaps more so now than at any other time. The dangers presented by this unpredictable security environment are compounded by the continued propagation of asymmetric methods, the unprecedented proliferation of advancing technologies, and the increasingly provocative and destabilizing behavior by current and potential adversaries. Some nations are investing in long-term military modernization programs, including capabilities that could pose an existential threat to the United States. A number of others are developing, sustaining, or modernizing their nuclear forces, including weapons and platforms that are mobile, hardened and underground.

Russia. Russia warrants our attention. Its new security strategy makes clear that Russia seeks to re-assert its great power status. Russia is modernizing its conventional and strategic military programs, emphasizing new strategic approaches, declaring and demonstrating its ability to escalate if required, and maintaining a significant quantity of non-strategic nuclear weapons. Russia has engaged in destabilizing actions in Syria and Ukraine (Eastern and Crimea), while also violating the Intermediate-range Nuclear Forces (INF) Treaty, and other international accords and norms. Russia is also developing counter-space and cyber capabilities

Despite these activities, and assertions by some that the United States and Russia are in a nuclear arms race, there is continued adherence to the New Strategic Arms Reduction Treaty (New START) by both nations. In compliance with a series of treaties, the United States has reduced its stockpile by 85 percent relative to its Cold War peak. Instead of dozens of delivery systems, we now have four strategic delivery platforms. We seek no new military capabilities in our nuclear forces. Rather, we seek to retain and modernize only those capabilities needed to sustain a stable and effective deterrent capability. We are on track to achieve New START limits of 1550 deployed warheads and 700 deployed delivery systems by February 2018.

The benefit of New START is that it promotes stability by maintaining equivalency in nuclear weapon numbers and strategic capability. It also promotes transparency via inspections and helps assure our non-nuclear allies they do not need their own nuclear deterrent capabilities. However, to maintain strategic stability as we draw down to New START central limits, the remaining systems must be safe, secure, effective and ready.

China. In addition to pursuing regional dominance in the East and South China Seas, China continues making significant military investments in nuclear and conventional capabilities. China is re-engineering its long-range ballistic missiles to carry multiple nuclear warheads and continues to develop and test hyper-glide vehicle capability. China's pursuit of conventional prompt global strike capabilities, offensive counter space technologies, and exploitation of computer networks raises questions about its global aspirations. While China periodically reminds us of its "No First-Use" nuclear policy, these developments – coupled with a lack of transparency on nuclear issues such as force disposition and size – impact regional and strategic stability.

North Korea. North Korea's behavior over the past 60 years has been very problematic. Today, North Korea continues heightening tensions by coupling provocative statements and actions with advancements in strategic capabilities, including claims of miniaturized warheads; developments in road mobile and submarine launched ballistic missile technologies. Most recently, North Korea has conducted its fourth nuclear weapons test and another missile launch of a satellite into space, furthering its ICBM research. These actions show disdain for United Nations Security Council resolutions and a dangerous lack of regard for regional stability.

Iran. As Iran follows the mandates of the Joint Comprehensive Plan of Action, we must be vigilant to detect if Iran ever shifts its intentions to pursue a nuclear weapon. Iran continues

to develop ballistic missiles and cyberspace capabilities – and we remain focused on countering its destabilizing activities in the region.

Violent Extremist Organizations (VEOs). Ungoverned or ineffectively governed regions remain incubators for those who seek to attack the world's peaceful societies. VEOs recruit and operate freely across political, social, and cyberspace boundaries. The effect of weapons of mass destruction (WMD) in the hands of VEOs could be catastrophic, and highlights the importance of our non-proliferation and counter WMD efforts.

In summary, the global strategic environment is increasingly complex. Unlike the bipolarity of the Cold War, today's multi-polar world with state, non-state, and mixed-status actors is more akin to multiplayer, concurrent and intersecting games of chess that severely challenge regional and global security dynamics. Future conflicts will not be contained within prescribed borders, stove-piped domains, or segregated areas of responsibility. We must view threats as transregional, multi-domain and multi-functional, requiring a comprehensive approach to strategic deterrence, assurance and escalation control.

USSTRATCOM IN THE 21ST CENTURY

USSTRATCOM counters diverse and complex threats through the execution of its fundamental mission: **to detect and deter strategic attacks against the U.S. and our allies, and to defeat those who attack if deterrence fails.** USSTRATCOM is assigned nine distinct responsibilities: **Strategic Deterrence; Space Operations; Cyberspace Operations; Global Strike; Joint Electronic Warfare; Missile Defense; Intelligence, Surveillance and Reconnaissance; Countering Weapons of Mass Destruction; and Analysis and Targeting.** These diverse assignments are strategic in nature, global in scope, and intertwined with Joint Force capabilities, the interagency process and the Whole-of-Government approach. **Each**

mission supports or is interconnected with the others, and their combined capabilities enable a comprehensive approach to strategic deterrence, assurance and escalation control in the 21st century.

Deterrence is a fundamentally human endeavor, firmly rooted in psychology and social behavior. At the most basic level, deterrence is achieved through one of two mechanisms. The first is an aggressor's recognition that unacceptable costs may be imposed for taking an action and recognition that forgoing this action may result in lesser costs. The second is an aggressor's belief that the contemplated action will not produce its perceived benefit, or that not acting will produce a greater perceived benefit. These elements combine to convince potential adversaries that they will not succeed in an attack, and even if they try, the costs will far outweigh the benefits. USSTRATCOM's capabilities underpin these fundamental elements of deterrence.

Achieving comprehensive deterrence, assurance and escalation control requires nuclear weapons systems along with a robust intelligence apparatus; space, cyberspace, conventional, and missile defense capabilities; global command, control, and communications; and comprehensive plans that link organizations and knit their capabilities together in a coherent way.

Priorities. USSTRATCOM is guided by my six overarching priorities:

1. Deterring strategic attack against the United States and providing assurance to our allies. Strategic attacks can occur through a variety of means in any domain. They may impact many people or systems, affect large physical areas, act across great distances, persist over long periods of time, disrupt economic or social structures, or change the status quo in a fundamental way.

2. Providing the Nation with a safe, secure, effective and ready nuclear deterrent force. Foundational documents such as the 2010 Nuclear Posture Review, the 2013 Report on Nuclear Weapons Employment Strategy, the 2014 Quadrennial Defense Review (QDR), and the 2015 National Military Strategy have consistently repeated this mandate. I am committed to providing our Nation with a viable and credible nuclear deterrent force.

3. Delivering comprehensive warfighting solutions. To effectively deter, assure, and control escalation in today's security environment, threats must be surveyed across the "spectrum of conflict." Escalation may occur at any point, in varying degrees of intensity, with more than one adversary, in multiple domains, to include "below threshold activities" that would not ordinarily propel international action. Our actions and capabilities must convince any adversary that they cannot escalate their way out of a failed conflict, and that restraint is always the better option. Doing so requires a deeper, broader understanding of our potential adversaries, so that we can deny action; hold critical nodes at risk; and prevent activities, perceptions and misperceptions from escalating. We must also look at our military capabilities in a holistic manner, and fully integrate them within our other elements of national power. We must pursue a Whole-of-Government approach to deterrence, including allies and partners in our efforts, with ready forces in all domains.

4. Addressing challenges in space and cyberspace with capability, capacity and resilience. Space capabilities remain foundational to our way of life not only for the United States but for the international community at large. Yet some nation states are investing in counter-space capabilities. We must assure our continued access to space through improved space situational awareness, operating procedures, resiliency and other operational concepts central to our ability to maintain an advantage in space. Cyberspace underpins all of my mission

areas and has become a critical facet of national power. We must continue to develop a robust Cyber Mission Force with the authorities, skills and resources to protect our DOD networks against a maturing set of cyberspace threats. Additionally, cyber defense of future networked systems must be a design priority.

5. Building, sustaining and supporting partnerships. We aim to work seamlessly with the other Combatant Commands, across the federal government, commercial sector, academia and with partners and allies to apply the scope of the USSTRATCOM portfolio toward a synchronized pursuit of national objectives. This robust interaction must occur at all levels at USSTRATCOM and includes operations, planning, exercising and wargaming.

6. Anticipating change and confronting uncertainty with agility and innovation. Sound decision-making requires thorough analysis to prioritize our activities with flexible, agile and adaptable thinking. This effort includes a variety of wargames, demonstrations and exercises to evaluate deterrence and escalation control options. We will support the DOD Defense Innovation Initiative and the associated Advanced Capability and Deterrence Panel's efforts. This will help us identify new operational concepts, develop cutting edge technology, and enable a continuing evolution of ideas on how to deter current and potential adversaries.

MISSION AREA CAPABILITIES & REQUIREMENTS

We must maintain a military capability that provides our leadership with the decision space to respond in the best interest of the United States. This includes the ability to mitigate current and future risk as it pertains to nuclear, space and cyberspace threats. Therefore, prioritizing resources to meet our requirements necessitates a thoughtful assessment of national priorities in the context of fiscal realities. The President's Budget supports my mission requirements, but there is no margin to absorb risk. Any cuts to the budget will hamper our

ability to sustain and modernize our military forces, and will add significant risk to our strategic capabilities.

Nuclear Deterrent Forces

Today, America's nuclear forces remain safe, secure, effective and ready. For more than 70 years, thanks in part to our credible nuclear forces, the United States has deterred great power war against nuclear-capable adversaries.

Nuclear Triad. Our nuclear Triad is a requirement. The policy of maintaining a nuclear Triad of strategic nuclear delivery systems was most recently re-iterated in the 2014 QDR. Our Intercontinental Ballistic Missiles, Ballistic Missile Submarines, Air-Launched Cruise Missiles, and nuclear capable heavy bombers and associated tankers each provide unique and complementary attributes that together underpin strategic deterrence and stability—and each element is in need of continued investment. The Triad provides a hedge against technical problems or changes in the security environment and must consist of independently viable weapons systems and platforms which present adversaries with a complex, multi-pronged problem. The FY 2017 budget request funds the Ground Based Strategic Deterrent program to replace our aging Minuteman ICBM fleet, which for decades have served to complicate an adversary's decision to launch a comprehensive counterforce strike on the United States. The FY 2017 budget request funds the Ohio-Replacement Program to ensure the uninterrupted deployment of the Triad's most survivable leg. The Long Range Strike-Bomber, Long Range Stand-Off Cruise Missile, and B61-12 gravity bomb are needed to provide the flexibility, visibility and ability to forward-deploy and to support our extended deterrence commitments to our allies.

Intercontinental Ballistic Missiles (ICBMs). Our ICBM force provides a responsive, highly reliable and cost effective deterrent capability. To maintain an effective Minuteman III force through 2030, USSTRATCOM supports several near-term sustainment efforts, including ICBM Fuze Modernization, Launch Control Center Block Upgrade, and Airborne Launch Control System Replacement. Vital ICBM security improvements include a UH-1N Helicopter Replacement, Payload Transporter Replacement and ICBM Cryptographic Upgrade. Beyond 2030, the Ground Based Strategic Deterrent program is essential to recapitalize the ICBM force prior to Minuteman age out I fully support an integrated Ground Based Strategic Deterrent weapon system that recapitalizes flight systems, ground launch systems, command and control, and support equipment. I am encouraged by the ongoing Air Force and Navy effort to study the feasibility of sharing common technology between their respective programs in order to reduce costs and preserve the unique skills required to field capable ballistic missile weapon systems.

Ballistic Missile Submarines (SSBNs). Recapitalizing our sea-based strategic deterrent force remains my top modernization priority. The Navy's SSBNs and Trident II D5 ballistic missiles constitute the Triad's most survivable leg. The Ohio-class SSBN fleet is undergoing significant sustainment efforts to maintain our nation's required high operational availability and extend the life of the D5 ballistic missile. USSTRATCOM continues to strongly support and work with the Navy as it modernizes the SSBN fleet. The Ohio Replacement SSBN, currently in development and expected to be fielded in 2031, will continue to serve as the Nation's survivable strategic deterrent into the 2080s. Despite a hull life extension from 30 to 42 years, the current Ohio-class will quickly approach the end of its effective service life. No further extension is possible. Any further delay will put the reliability of our sea-based nuclear deterrent at unacceptable risk. In addition, we must continue our commitment to the United Kingdom to

develop and field the Common Missile Compartment to ensure both nations' SSBNs achieve operational capability to replace the existing platforms.

Heavy Bombers. Our dual-capable B-52 and B-2 bombers are the most flexible and adaptable leg of the nuclear Triad and provide significant conventional capabilities. Bombers play a key role in stabilizing and managing crises by providing a visible signaling option and rapid hedge against operational and technical challenges in other legs of the nuclear Triad. Ongoing and planned sustainment and modernization activities, to include associated Nuclear Command, Control and Communications upgrades, will ensure our bombers provide credible deterrent capabilities until their planned end-of-service-life. I fully support the Air Force program for fielding a new, highly survivable penetrating conventional and nuclear Long Range Strike Bomber (LRS-B). When coupled with a new Long Range Stand-Off (LRSO) cruise missile and the B61-12 gravity bomb, the LRS-B will provide the President with flexible options to address a range of contingencies in non-permissive environments. Maintaining an air-delivered standoff and direct attack capability is vital to meeting our strategic and extended deterrence commitments and denying geographic sanctuaries to potential adversaries. The new LRSO is needed to replace the aging Air Launched Cruise Missile (ALCM), which has far exceeded its originally planned service life, is being sustained through a series of service life extension programs, and is required to support our B-52 bomber fleet. Likewise, the B61-12 is needed to extend the life of aging gravity nuclear weapons and provide continued viability for both the B-2 strategic bomber and dual capable fighter aircraft supporting our NATO and extended deterrence commitments.

Foundational to the nuclear triad is a synthesis of dedicated sensors, assured command and control, nuclear weapons and their enabling infrastructure, treaties and non-proliferation activities.

Sensors. Indications and warning are necessary for maximum decision space, and strategic missile warning remains one of our most important capabilities. Along with persistent and tailored intelligence, our Integrated Tactical Warning and Attack Assessment network provides timely, accurate, unambiguous and continuous tactical early warning, allowing us to select the most suitable course of action in rapidly developing situations. While the Defense Support Program is nearing the end of its operational life, the Space-Based Infrared System program is on track to provide continuous on-orbit warning. The survivable and endurable segments of these systems, along with Early Warning Radars and nuclear detonation detection elements, are in urgent need of sustainment and modernization. We must continue to maintain legacy systems and address the ever-increasing risk to mission success. Prompt and sufficient recapitalization of these critical facilities and networks—to include electromagnetic pulse protection and survivable endurable communications with other nodes in the system—will be pivotal in maintaining a credible deterrent.

Nuclear Command, Control and Communications (NC3). All USSTRATCOM missions require robust global Command, Control, Communications, and Computer (C4) capabilities and infrastructure supporting the President's national-decision making process across a spectrum of scenarios. These communications capabilities are crucial to providing the President and his key advisors the right information to expand decision space. USSTRATCOM is teaming with the White House, national laboratories, and the private sector to develop a Global C4 system, setting the conditions for timely, informed National decision making

anywhere on the globe. The Council on Oversight of the National Leadership Command, Control and Communications System has proven effective in synchronizing and prioritizing modernization efforts, and articulating those priorities to Congress.

Maintaining a credible nuclear deterrent for the long term requires recapitalization of key systems and capabilities throughout the NC3 architecture. The unpredictable challenges posed by today's complex multi-domain, multi-threat security environment make it increasingly important to optimize our aging NC3 systems architecture while leveraging new technologies. Maintaining nuclear deterrence and strategic stability requires a command and control architecture comprised of interdependent fixed and mobile systems and nodes that deliver capability throughout the space, air and land domains. Through continued funding for NC3 modernization programs, we can ensure effective command and control of the Nation's forces well into the future.

In space, we are transitioning from Military Strategic and Tactical Relay (MILSTAR) to Advanced Extremely High Frequency (AEHF) satellite communications systems. The AEHF satellite constellation system, coupled with requisite ground node and airborne platform Family of Advanced Beyond Line-of-Sight terminals (FAB-T) and the Presidential and National Voice Conferencing (PNVC) system, will extend enhanced capabilities to enable collaboration between the President and senior advisors under any circumstance and also assure connectivity with the nuclear forces.

Our efforts to field an air layer network supported by AEHF and a modernized Very Low Frequency/Low Frequency (VLF/LF) capability will increase resiliency and reliability across the NC3 architecture and begins to address the emerging threats to our space-based communications. I support the investment plan to replace our aging very low frequency receivers on the E-6B

Airborne Command Post (ABNCP) and the E-4B National Airborne Operations Center (NAOC), providing assured, world-wide survivable communications into the future. Additionally, the Air Force continues to fund the very low frequency receiver on the B-2 bomber fleet, and began a program to install next generation protected, assured, and survivable communications on the B-2.

Within the land component, there are efforts underway to upgrade fixed and mobile warning systems to enable them to leverage the evolving Space Based Infra-Red System (SBIRS) capability. Progress has also been made on the construction of the new USSTRATCOM Command and Control (C2) Facility, which will support all our missions and will be a key component of our future nuclear and national C2 architecture. The C2 Facility, which is on track for occupancy in 2018, serves as a visible reminder to adversaries of the importance and national commitment to modernize our aging NC3 facilities.

Weapons and Infrastructure. Today's stockpile remains safe, secure, effective, and meets operational requirements. However, our nuclear weapons (now averaging 27 years of service) and supporting infrastructure (some of which date back to the Manhattan Project) are in dire need of modernization and life extension. Surveillance activities, Life Extension Programs (LEPs), and Stockpile Stewardship efforts are essential to mitigating age-related effects and incorporating improved safety and security features without a return to underground nuclear explosive testing. Continued talent pool investment with our nuclear scientists and engineers is also paramount to providing viability to our stockpile requirements.

As a member of the Nuclear Weapons Council (NWC), I work closely with my DOD and Department of Energy National Nuclear Security Administration (NNSA) counterparts to ensure we maintain a safe, secure, and effective nuclear stockpile. Active and sustained execution of the NWC's long-term "3+2" strategy to deliver three ballistic missile and two air-delivered

warheads is crucial to addressing near-term technical needs and future capability requirements. W76-1 and B61-12 LEPs are on track and are necessary to maintain confidence in the reliability, safety and intrinsic security of our nuclear weapons. Additionally, early activities are underway to synchronize the LRSO cruise missile program with the W80-4 warhead LEP to ensure these programs are fielded in time to maintain a viable stand-off nuclear capability. The President's Budget ensures schedule alignment of the cruise missile and its associated warhead.

Treaties. International agreements such as New Strategic Arms Reduction Treaty (New START), the Open Skies Treaty (OST), and the Intermediate-range Nuclear Forces (INF) Treaty contribute to strategic stability through transparency, confidence building, and verification. The State Department has primary responsibility for treaty administration, and USSTRATCOM remains closely involved in their execution. While these agreements have served valuable roles in promoting strategic stability, treaty violations are a significant cause for concern.

In meeting treaty obligations, the United States Air Force has eliminated all non-operational intercontinental ballistic missile silos, and is placing 50 intercontinental ballistic missiles into a non-deployed status. All intercontinental ballistic missiles now carry only a single warhead. The Air Force has also eliminated non-operational B-52G series heavy bombers, and is converting 42 B-52H's to conventional-only bomber missions. Additionally, the United States Navy is sealing four launch tubes on each Ohio class SSBN, removing 56 launch tubes from accountability under New START.

Budget. Sustaining and modernizing the nuclear enterprise infrastructure is crucial to maintaining a viable nuclear deterrent force. It is impressive to see today's systems working well beyond their expected service life, but we cannot rely on that indefinitely. Aging weapon

systems and supporting infrastructure are stressing our ability to maintain a viable and credible force.

I share concerns about the cost of modernization, but the greater worry is the cost if we do not make needed investments. To reverse the long trend of flat or even declining resources, there must be a sustained, multi-decade investment program to our weapons, delivery systems and supporting infrastructure. As stated by the Congressional Budget Office, the expected cost of nuclear forces represents roughly 5 percent to 6 percent of the total costs of the planned defense budgets for the next ten years. The importance of the foundational nuclear deterrent force to national security, assurance to our allies, our non-proliferation objectives and strategic stability far outweigh the expense of recapitalization. Failing to provide the resources requested in the FY 2017 budget request would delay the development of these programs and unacceptably degrade our credibility and ability to deter and assure. Our Nation must make this investment.

Space Operations

The U.S. must maintain assured access to space. Our national space capabilities allow us to globally navigate, communicate, and observe events in areas where non-space sensors are not feasible. Space capabilities are also a vital component of comprehensive deterrence and assurance and are critical to supporting our deployed forces and our national decision-making processes. Investment in these capabilities is vital to our national security. We greatly appreciate the continued support of Congress in helping to increase the resiliency and vitality of our space assets.

The space domain has increasingly become contested, degraded, and operationally limited. These are not new challenges. Some countries have clearly signaled their intent and ability to conduct hostile operations in space as an extension of the terrestrial battlefield. These

operations would deny U.S. forces the advantages of space, which have enabled us to favorably shape events in all corners of the globe.

In response to growing space threats, the DOD and Intelligence Community (IC) established the Joint Space Doctrine and Tactics Forum (JSDTF), which I co-chair with Ms. Betty Sapp, Director, National Reconnaissance Office. The JSDTF's goals are to ensure U.S. space policy, doctrine, operational concepts, strategies and planning scenarios reflect that space is a contested domain, populated by dynamic actors. We have already made significant improvements in the integration of exercises and wargames, and are revising associated joint doctrine, as well as new tactics, techniques and procedures for our space operators. The JSDTF will foster the transformation of how the U.S. operates in space by promoting seamless functionality between the DOD and IC – a tight bond we must continue to strengthen.

Another key initiative is the establishment of the Joint Interagency Combined Space Operations Center (JICSpOC) located at Schriever Air Force Base in Colorado. This center combines the efforts of USSTRATCOM, Air Force Space Command, and the intelligence community with a goal to create unity of effort and facilitate information sharing across the national security space enterprise. At its current phase, the JICSpOC is providing a robust location to conduct comprehensive operational experimentation. The JICSpOC will ensure the space enterprise meets and outpaces emerging and advanced space threats and will provide vital information for national leadership, allies, partners and the Joint Force. It will also serve to enhance the Nation's deterrent posture by demonstrating the United States is prepared when our space capabilities are threatened.

A component to all of these efforts is Space Situational Awareness (SSA)—the information that allows us to understand what is on orbit, where it is, where it is going, and how

it is being used. Consistent with long-standing obligations and principles of the Outer Space Treaty and other international legal standards, our goal is to ensure space remains a safe domain for all legitimate users. Sharing SSA information and collaborating with other nations and commercial firms promotes safe and responsible space operations, reduces the potential for debris-producing collisions and other harmful interference, builds international confidence in U.S. space systems, fosters U.S. space leadership, and improves our own SSA through knowledge of owner/operator satellite positional data.

USSTRATCOM has negotiated SSA Sharing Agreements and Arrangements with 51 commercial entities, two intergovernmental organizations (EUMETSAT and European Space Agency), and ten nations (Spain, France, Italy, Japan, Australia, Canada, South Korea, United Kingdom, Germany, and Israel) and is in the process of negotiating additional agreements. Through these sharing agreements, USSTRATCOM assists partners with activities such as launch support; maneuver planning; support for satellite anomaly resolution, electromagnetic interference reporting and investigation; support for de-commissioning activities; and space object conjunction assessments.

The Geosynchronous Space Situational Awareness Program (GSSAP) achieved initial operational capability in October of 2015, and USSTRATCOM is now operating GSSAP satellites to enable our cutting-edge SSA capabilities. GSSAP facilitates space-monitoring activities that contribute to global safety of spaceflight, as well as the peaceful access to space.

At the nucleus of USSTRATCOM's approach to space security is mission assurance—ensuring Combatant Commanders have required access to space-based capabilities. USSTRATCOM's Joint Functional Component Command for Space (JFCC-SPACE), located at Vandenberg Air Force Base in California, leads the effort, and through the Joint Space

Operations Center (JSpOC), executes continuous and integrated military space operations and routinely tracks thousands of space objects in orbit around the Earth. This includes more than 1,300 active satellites operated by approximately 60 nations and a wide variety of government, commercial, and academic organizations. The JSpOC also maintains the catalog of all artificial Earth-orbiting objects, charts preset positions for orbital flight safety, and predicts objects reentering the Earth's atmosphere.

We must sustain judicious and stable investments to preserve the advantages we hold in this complex environment. Examples include the Space Fence program which will greatly expand the capacity of the Space Surveillance Network; investments in modeling and simulation that will increase our understanding of the space environment and adversary capabilities; and funding for satellite communications that are resistant to interference. We must also continue to seek innovative and solutions with Allies and our commercial partners to ensure access to space operations remains available. These include active and passive protection measures for individual systems and constellations, and a critical examination of the architectural path we must follow to ensure resilience and affordability in our space capabilities.

Cyberspace Operations

This year will mark the sixth anniversary of United States Cyber Command (USCYBERCOM). USCYBERCOM imparts an operational outlook and attitude to the management of the DOD's approximately seven million networked devices and 15,000 network enclaves.

Our primary focus for cyberspace operations within DOD is building the capability and capacity to protect DOD networks, systems, and information; defend the nation against cyberattacks; and support operational and contingency plans. The Cyber Mission Force (CMF) construct addresses the significant challenges of recruiting, training and retaining people, in

addition to acquiring the facilities and equipment necessary for successful cyberspace operations. We are creating 133 cyber mission teams manned by more than 6,000 highly trained people by the end of FY18. To date, 84 of those teams are fielded and assigned to a variety of missions, including our ongoing efforts to degrade, dismantle, and ultimately destroy ISIL. These teams support combatant commands and national missions. Budget stability is crucial to achieving this vision.

On 30 September 2015, the Secretary of Defense and the Chairman of the Joint Chiefs of Staff signed the DOD Cybersecurity Culture and Compliance Initiative (DC3I), tasking USSTRATCOM and USCYBERCOM to lead implementation. DC3I fosters long-term improvement through training, inspections, reporting and accountability. Improving our cybersecurity culture requires a holistic approach that addresses people, processes, and technology. Such efforts will continue to be critical to defending our DOD networks.

Global Strike

USSTRATCOM's Joint Functional Component Command for Global Strike (JFCC-GS) operates from Offutt AFB, Nebraska. JFCC-GS provides a unique ability to command and control our global strike capabilities and build plans that rapidly integrate into theater operations. This includes integration of combat capability associated with kinetic and non-kinetic effects.

Conventional Prompt Global Strike (CPGS) capability offers the opportunity to rapidly engage high-value targets without resorting to nuclear options. CPGS can provide precision and responsiveness in Anti-Access/Area Denial environments while simultaneously minimizing unintended military, political, environmental or economic consequences. I support continuing research and development of CPGS capabilities.

Missile Defense

Ballistic missile proliferation and lethality continues to increase as countries acquire greater numbers of ballistic missiles, increase their ranges, and incorporate countermeasures. North Korea possesses the Taepo Dong 2 space launch vehicle/ICBM, and has displayed the KN08 road-mobile ICBM that is likely capable of reaching much of the continental United States. North Korea also possesses hundreds of Short- and Medium-Range Ballistic Missiles capable of threatening South Korea, Japan, and forward-deployed U.S. forces in Eastern Asia and the Western Pacific. Iran's ballistic missile capability also presents a significant challenge to U.S. interests in the Middle East. Iran's overall defense strategy relies on a substantial inventory of ballistic missiles capable of striking targets throughout Southwest Asia and parts of Europe.

Accordingly, effective missile defense is an essential element of the U.S. commitment to strengthen strategic and regional deterrence against states of concern. The Ground-Based Midcourse Defense (GMD) system protects the U.S. homeland against a limited ICBM attack from North Korea and potential future threats from Iran. However, continued investment in three broad categories is required to lower costs and improve our capabilities against growing threats: 1.) persistent and survivable sensors, 2.) increased inventories of Ground-Based Interceptors (GBI) with improved performance and reliability and 3.) increased regional capability and capacity. These needs can be addressed by the continued funding of priority programs such as: Long-Range Discrimination Radar (LRDR), Redesignated Kill Vehicle (RKV), Aegis Ballistic Missile Defense, Terminal High-Altitude Area Defense follow-on, Overhead Persistent Infra-Red sensors, Upgraded Early Warning Radar, and Joint Tactical Ground Stations. Collectively, these improvements increase interceptor effectiveness and lower costs to defeat threats.

We have made significant progress in reaching our missile defense goals. To enhance Ballistic Missile Defense System (BMDS) sensors and discrimination, we are using available

technology to improve sensors, battle management, fire control and kill vehicles, while fielding LRDR to improve tracking and discrimination for homeland defense against Pacific theater threats. We are also increasing the number of GBIs from 30 to 44 by the end of 2017. Upgrades continue to improve GBI fleet reliability, and the development of the RKV began last year with deployment expected in approximately 2020. The RKVs will be more reliable, cost-effective, and easier to produce.

The European Phased Adaptive Approach (EPAA) contributes to the defense of our deployed forces in Europe and our European NATO Allies. EPAA Phase 1 was achieved in December 2011. Phase 2 is going through testing and integration and we expect it to achieve operational capability in Spring 2016. Phase 3 remains on schedule to be operational in the 2018 timeframe and will provide defensive coverage against medium- and intermediate-range threats with the deployment of a second Aegis Ashore site in Poland and an upgraded SM-3 Block IIA interceptor. The EPAA continues to be interoperable with NATO's Ballistic Missile Defence system.

While significant investments in intercept technology have increased our missile defense capability, much work remains. Increases in the quantity and quality of threats increase the risk that adversary missiles will penetrate our defenses and reach their intended targets. We are working with the Joint Integrated Air and Missile Defense Organization, the Missile Defense Agency and industry partners to explore improvements to the current BMDS. We must also examine the potential to prevent attacks by countering threats prior to launch. Efforts to defeat missile threats across the launch spectrum rely on awareness and warning and must be based on actions that are synchronized within a fully integrated missile defense architecture to maximize our limited defensive capacity.

Countering Weapons of Mass Destruction (CWMD)

The U.S National Security Strategy states “there is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists.” The DOD Strategy for CWMD also affirms that the pursuit of WMD and potential use by actors of concern pose a threat to U.S. national security and stability around the world. As DOD’s global synchronizer for CWMD planning efforts, USSTRATCOM supports this strategy by leveraging the expertise resident in our Center for Combating Weapons of Mass Destruction (SCC-WMD), the Standing Joint Force Headquarters for Elimination (SJFHQ-E), and our partners at the Defense Threat Reduction Agency (DTRA)—all located at Ft. Belvoir, Virginia. Together our organizations conduct real-world and exercise CWMD activities with the other combatant commands to identify, prioritize, and mitigate WMD risks posed by the proliferation of WMD technology and expertise to nation-states and non-state actors.

To execute the DOD Strategy for CWMD, we have identified a need for comprehensive situational awareness that incorporates collaborative tools, continuously assesses the WMD threat, and provides a holistic awareness of the WMD environment. This capability would provide an enhanced awareness of emergent catastrophic-scale WMD threats that require collaboration across the interagency and partner nations. There is also an urgent need to update agent defeat weapon systems and develop modeling and simulation to assess collateral damage during WMD weapon attacks. USSTRATCOM is working closely with DTRA to resolve modeling and simulation shortfalls and ensure that cutting-edge technology is applied to WMD consequence.

The National Strategic Research Institute (NSRI) at the University of Nebraska, a University Affiliated Research Center in partnership with USSTRATCOM and the DOD, is

providing our nation with cutting-edge mission-essential research and development capabilities in Combating Weapons of Mass Destruction (CWMD). The NSRI experienced another successful year conducting scientific research to help ensure preparedness for WMD threats.

Joint Electronic Warfare / Joint Electromagnetic Spectrum Operations

The electromagnetic spectrum (EMS) reaches across geopolitical boundaries and domains, and is tightly integrated into the conduct of commerce, governance and national security. Commercial demand for spectrum access results in increased pressure on bandwidth traditionally used for military operations. Additionally, our potential adversaries are actively pursuing capabilities to contest our use of the EMS.

Joint Electromagnetic Spectrum Operations (JEMSO) strengthens U.S. national objectives and enables the combat capability of the Joint Force by ensuring access to the EMS while denying adversaries the same. USSTRATCOM is developing JEMSO policy and doctrine, addressing capability gaps across the DOD, and working closely with the Combatant Commands, Services and other U.S. Government agencies through advocacy, planning and training.

Intelligence, Surveillance, & Reconnaissance (ISR)

The demand for ISR has outpaced our ability to meet all needs. At the same time, we are focused on increasing the effectiveness and persistence of ISR capabilities while reducing business costs. Located at Joint Base Anacostia-Bolling, Washington, D.C., USSTRATCOM's Joint Functional Component Command for ISR (JFCC-ISR) is working with the Joint Staff, Services, Combatant Commands and the Intelligence Community to improve the management of DOD's existing ISR capabilities. I fully support maximizing the agile use of the capabilities we have, while also enhancing allied and partner contribution and cooperation. These efforts are designed to increase the persistence of our ISR capabilities, reduce the risk of strategic surprise, and increase our ability to respond to crises.

Targeting and Analysis

Targeting requires dedicated analysis. USSTRATCOM's Joint Warfare and Analysis Center (JWAC) in Dahlgren, VA enhances our Strategic Deterrence and Global Strike missions by providing unique comprehensive analysis. JWAC's ability to solve complex challenges for warfighters—using a combination of social and physical science techniques and engineering expertise—is invaluable to protecting the Nation and helping the Joint Force accomplish its missions.

OUR PEOPLE

People remain our most precious resource and deserve our unequivocal commitment to their well-being. Just as we sustain and modernize our platforms and weapons, we must sustain and modernize our workforce. Maintaining a talent pool of nuclear scientists and engineers is also paramount to providing viability to meet our stockpile requirements. Likewise, investing in the future of the professionals who operate, maintain, secure, and support our nuclear enterprise is critical. Tomorrow's leaders must have the ability to stretch their intellect well beyond one-dimensional problems. They must be able to operate in a multi-dimensional environment with multiple activities taking place simultaneously.

My visits throughout the past year confirmed my belief that we have an outstanding team in all of our mission areas. I am honored to lead such a focused, innovative and professional group dedicated to delivering critical warfighting capabilities to the Nation. Whether they are underwater on an SSBN, underground in a Launch Control Center, in the air on a bomber, or supporting missions from cyberspace to outer space, these great Americans do all they can for our Nation.

CONCLUSION

Achieving strategic deterrence, assurance and escalation control will require a multi-faceted, long-term approach to investing in strategic capabilities and a renewed commitment to sustaining intellectual capital. The sustainment and recapitalization of our Nation's strategic capabilities is sorely needed and must not be delayed.

In today's uncertain times, your support, combined with the hard work of the exceptional men and women of United States Strategic Command, will ensure that we remain ready, agile and effective in deterring strategic attack, assuring our Allies and partners, and addressing current and future threats.

Admiral Cecil D. Haney
Commander, U.S Strategic Command

Admiral Cecil Haney, a native of Washington, D.C., is a 1978 graduate of the United States Naval Academy.

His career as a submariner includes assignments in USS John C. Calhoun (SSBN 630), USS Frank Cable (AS 40), USS Hyman G. Rickover (SSN 709), USS Asheville (SSN 758), and Submarine Squadron 8, culminating in command of USS Honolulu (SSN 718).

Subsequent fleet command assignments include Submarine Squadron 1 from June 2002 to July 2004, and Submarine Group 2 from October 2006 to March 2008.

Haney's shore duty tours include administrative assistant for enlisted affairs at Naval Reactors; congressional appropriations liaison officer for the Office of the Secretary of Defense (Comptroller); deputy chief of Staff of Plans, Policies and Requirements, U.S. Pacific Fleet (N58); director, Submarine Warfare Division (N87); director, Naval Warfare Integration Group (N00X); deputy commander, U.S. Strategic Command and Commander, U.S. Pacific Fleet.

Haney holds master's degrees in Engineering Acoustics and System Technology from the Naval Post Graduate School, and a master's degree in National Security Strategy from the National Defense University.

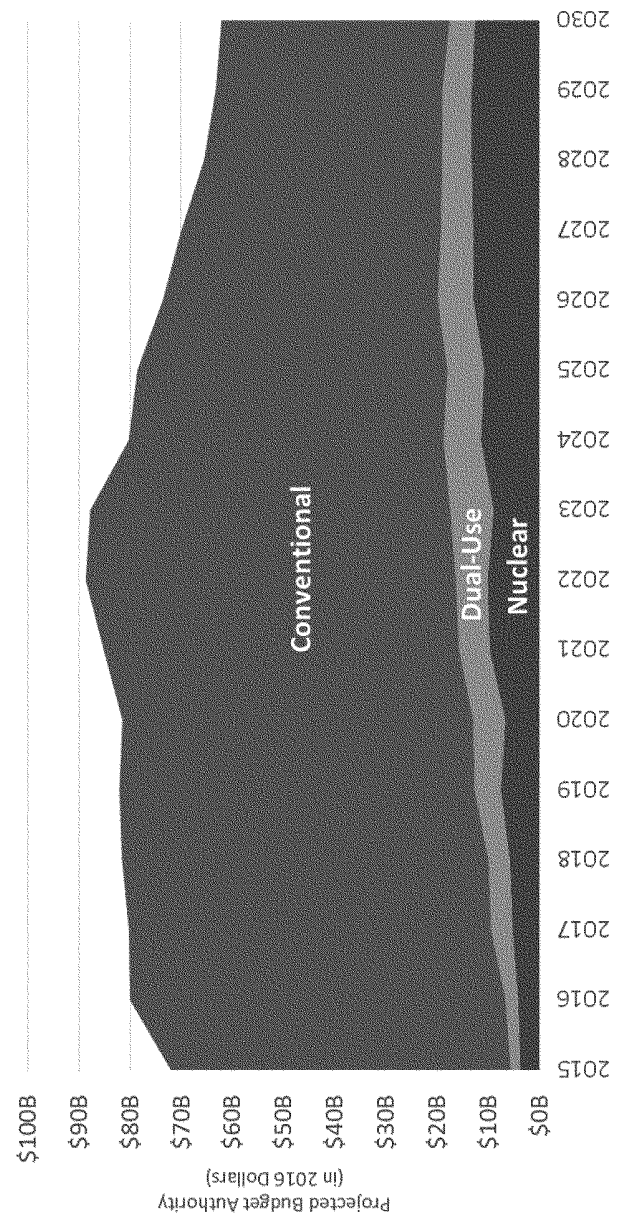
Haney's decorations include the Navy Distinguished Service Medal (two awards), Defense Superior Service Medal (two awards), Legion of Merit (four awards), Navy Commendation Medal (three awards), Navy Achievement Medal (two awards), and various campaign and unit awards. In addition, he was the 1998 Vice Admiral James Bond Stockdale Leadership Award recipient.

Updated: 17 November 2014

DOCUMENTS SUBMITTED FOR THE RECORD

FEBRUARY 24, 2016

Nuclear vs. Conventional MDAP Bow Wave





SECRETARY OF THE AIR FORCE
WASHINGTON

FEB 4 2016

The Honorable Mike Rogers
U.S. House of Representatives
Washington, DC 20515

Dear Representative Rogers:

Thank you for your December 11, 2015 letter regarding the need to replace the helicopters supporting our intercontinental ballistic missile (ICBM) wings.

The Air Force is committed to resolving issues with our nuclear enterprise. We are evaluating acquisition approaches focusing on expediting the fielding of replacement helicopters for the nuclear convoy escort and missile field support missions. A "traditional" full and open competition, based on replacing the entire fleet, could begin delivering helicopters no earlier than late FY18. The Air Force is also evaluating approaches to separate the acquisition of helicopters supporting our ICBM wings from other UH-1N missions. We are assessing the statutory and regulatory procedures associated with sole source procurement of helicopters to support the ICBM wings. This option could potentially accelerate initial fielding by 9 to 12 months.

While we are dedicated to delivering these helicopters as quickly as possible, achieving an initial operational capability with the replacement presents a number of additional support requirements, to include trained aircrews, maintenance personnel, and base-level infrastructure needed to operate and support an accelerated delivery schedule. The Air Force is considering potential acquisition options, timelines, and funding requirements associated with these support elements in concert with aircraft procurement and fielding strategies.

A final decision on the way forward for procurement of the UH-1N replacement helicopter is anticipated in the April-May 2016 timeframe, which will include approval of the program's acquisition strategy. We are currently finalizing our evaluation of industry market research responses which indicated considerable industry interest. The Air Force will provide details on the acquisition timeline and funding requirements subsequent to this milestone.

Thank you for your continued contributions to our Nation's defense and the United States Air Force.

Sincerely,

Deborah Lee James
Deborah Lee James

I am treating this as a top priority!

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

FEBRUARY 24, 2016

RESPONSE TO QUESTION SUBMITTED BY MR. LARSEN

Mr. McKEON. The Congressional Budget Office (CBO) estimated the total cost of U.S. nuclear forces at \$348 billion over the 10-year period of FY 2015 through FY 2024. This estimate included both sustainment of the existing force and modernization, for both DOD and DOE, as well as Nuclear Command, Control, and Communications (NC3). The CBO estimate also included a \$49 billion projection for cost growth.

The FY 2015 Report on the Plan for the Nuclear Weapons Stockpile, Nuclear Weapons Delivery Systems, and Nuclear Command and Control System Specified in Section 1043 of the National Defense Authorization Act for Fiscal Year 2012 (the "1043 Report") projected a total cost of \$298 billion for U.S. nuclear forces over the same period of FY 2015 through FY 2024. After accounting for the CBO's projection of cost growth, the two estimates for 10-year total cost are approximately equal.

While multi-decade cost estimates are of questionable utility, we expect the total cost for DOD nuclear modernization to be in the range of \$350 billion-\$450 billion over the next two decades (FY 2017 through FY 2036), with a projected average cost of about \$19 billion per year. In addition to these modernization costs, about \$12 billion of the annual DOD budget is currently allocated to sustainment and operation of existing nuclear forces and Nuclear Command, Control, & Communications (NC3). [See page 18.]

RESPONSES TO QUESTIONS SUBMITTED BY MR. BRIDENSTINE

Admiral HANEY. DOD user total supported commercial SATCOM throughput is 8.024 Gbps, and the total MILSATCOM supported throughput is 17.578 Gbps. Total usage equates to 25.601 Gbps of which 31.3 percent is commercial. Reference: Active Satellite Communications (SATCOM) Usage by Department of Defense (DOD) Users, DISA IE53, May 2016 [See page 15.]

Admiral HANEY. a. Eutelsat 70B (E70B); Coverage area: the Middle East, Central Asia, South East Asia, Australia, Europe, and parts of Africa b. Eutelsat 36B (E36B); Coverage area: the Middle East, Central Asia, Europe, Africa and Russia c. Eutelsat 21B (E21B); Coverage area: the Middle East, Central Asia, Europe, and North Africa d. Intelsat 906 (IS 906); Coverage area: the Middle East and India e. Intelsat 22 (IS 22); Coverage area: the Middle East, Africa, and Europe [See page 15.]

Admiral HANEY. USSTRATCOM lacks the necessary operational fidelity to definitively address these questions; however, initiatives are being taken to eliminate these data gaps. The DOD has directed creation of service alternatives to address fiscal, operational, and policy challenges, and "specific pathfinder activities" the DOD should undertake that could improve commercial SATCOM acquisition and management. DOD has charged DISA and Air Force with pathfinder development and execution. The DISA acquisition pathfinders are intended to help DOD understand its global commercial SATCOM requirements & utilization while analyzing alternative commercial leases in the short-term. The Air Force pathfinders are intended to investigate better ways to buy commercial SATCOM in the long term. Currently, Air Force and DISA have 5 pathfinder projects each in various stages of development and execution. DISA pathfinder initiatives will not be completed in FYI 7. The Pathfinders are being institutionalized into a business process that will be executed in an iterative fashion and will support preparation of the annual wide-band SATCOM Plan. Air Force Pathfinder 1 is complete with the four remaining expected to be incrementally completed through 2019. Furthermore, the Joint Staff has approved a Commercial SATCOM Centralized Management (CSCOM) Concept of Operations (CONOPS) leveraging the pathfinders to investigate more efficient means of operationally managing an enterprise pool of COMSATCOM bandwidth for the DOD, particularly in the more competitive or contested environments. [See page 15.]

Admiral HANEY. Yes, globally. a. The Defense Planning Guidance (DPG) study "Restoring SATCOM in a Degraded Environment" concluded, successful Operations Plan (OPLAN) execution is at risk due to insufficient SATCOM capacity and is com-

pounded in a degraded environment. b. Current day to day lower priority missions* (i.e. training, exercise, VIP support, RDT&E and Miscellaneous) go unfulfilled due to lack of funds and/or capacity and coverage shortfalls in various geographic regions. Most priority missions are successfully executed; however, these missions may also be challenged due to user saturation or on-orbit availability in South West Asia (SWA), Africa, and portions of the Pacific. [See page 15.]

*Mission priority is in accordance with CJCSI 6250.01 SATCOM Priority Table

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

FEBRUARY 24, 2016

QUESTIONS SUBMITTED BY MR. ROGERS

Mr. ROGERS. Why is it important that NATO declare operational capability of the European Phased Adaptive Approach this summer when the Alliance gathers for the Warsaw Summit?

Mr. McKEON. EPAA Phase II provides NATO (Ballistic Missile Defense) (BMD) with a roughly tenfold increase in capability since NATO declared Interim BMD Capability at the Chicago Summit. This tenfold increase comes from Aegis Ashore in Romania; four Aegis BMD capable ships homeported at Rota, Spain; a more capable interceptor; a more capable Aegis weapons system; and an improved NATO command and control system. A NATO declaration of BMD IOC at the Warsaw Summit sends three important messages: first, that the United States is committed to the defense of our deployed forces and Allies by increasing the capability of NATO BMD; second, that Allies recognize the importance of this contribution; and third, that NATO follows through on its security commitments.

Mr. ROGERS. When you testified in December of 2014 and in December of 2015, you promised this subcommittee, and a sister subcommittee on another committee, a briefing on the military options that have been promised to respond to the Russian Federation's violations of the INF treaty. That briefing has not yet happened. When will that briefing occur?

Mr. McKEON. I understand that Chairman of the Joint Chiefs of Staff is working to arrange a time of brief Chairman Rogers and Ranking Member Cooper.

Mr. ROGERS. We received a response to a question for the record you were asked in December concerning press reporting of negotiations with Pakistan concerning nuclear weapons. The response indicated there were no discussions that would lead to a "legally binding" agreement. To be clear, are there any discussions, including those that would lead to an agreement that would not be legally-binding?

Mr. McKEON. I believe the question for the record to which you refer was directed to the State Department. I defer to the State Department to provide additional information.

Mr. ROGERS. Recently, I saw a press report that the United States floated to Russia a proposal to undertake further nuclear arms reductions. I have to ask, is this true? Have the Russians in any way even attempted to resolve their violation of the INF treaty? Has it done anything to resolve compliance concerns on the Open Skies Treaty? How about the Biological Weapons Convention? The Chemical Weapons Convention?

Mr. McKEON. The United States has and will only consider nuclear reductions that are in the U.S. national security interest and that of our allies and partners. In June 2013, President Obama stated U.S. willingness to negotiate up to a one-third reduction in deployed strategic warheads from the level established by the New START Treaty. Although the Administration's desire for such a negotiation remains, progress requires a willing partner and a conducive strategic environment, which we do not have currently.

Russia has not been forthcoming with any information related to the existence of its Intermediate-Range Nuclear Forces (INF) Treaty noncompliant missile.

With regard to the Open Skies Treaty, the United States continues to engage with Russia and other Treaty Parties in the Open Skies Consultative Commission in an effort to resolve our compliance concerns and to improve Treaty implementation. In the meantime, we have adopted a very strict interpretation of our Treaty obligations, given Russia's failure to address these concerns to date. We are working with allies and partners to engage Russia on a path to full implementation. Open Skies observation flights by the United States and other Treaty Parties continue over Russia regularly and most of these proceed without issues arising.

The United States still cannot confirm Russia's compliance with the Biological Weapons Convention, as it remains unclear whether Russia has fulfilled the obligations inherited from the Soviet Union to destroy completely or divert to peaceful purposes items specified in Article I of the Convention.

Similarly, the United States still cannot confirm Russia's compliance with the Chemical Weapons Convention, as it is unclear if Russia has met its obligations for

declaration of its chemical weapon stockpiles, production facilities, and development facilities.

Mr. ROGERS. Why has the President consistently supported the ICBM leg of the triad? Why does it continue to be relevant?

Mr. MCKEON. The Intercontinental Ballistic Missile (ICBM) force provides the President with an important and unique contribution to our overall deterrent capabilities. ICBMs provide our most rapid response capability, and current U.S. nuclear posture preserves that responsiveness and strengthens strategic stability by maintaining most ICBMs on alert. The ICBM force also ensures that no adversary could launch a comprehensive counterforce attack on the United States by striking only a few targets. Finally, ICBM upload capability provides the ability to hedge against geopolitical surprise and technical problems in other parts of the arsenal. These attributes continue to contribute significantly to maintaining strategic stability.

Mr. ROGERS. As a policy matter, what should an adversary know if it thinks about attacking our MW and NC3 satellites? Is that adversary crossing a redline by taking our our protected comms and eyes that are designed to maintain situational awareness during a nuclear war? These capabilities are special, right?

Mr. MCKEON. 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. 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. Should any decisions be made by the services or components that would deprive the President of decision time when it comes to nuclear attacks and nuclear responses?

Mr. MCKEON. In general, the Department of Defense (DOD) supports maximizing the President's decision time in crises, and providing the President with as much information as possible to inform his decisions. DOD continues to take steps to ensure that our Nuclear Command, Control, and Communications capabilities meet national requirements, and the Military Departments play a vital role in that process.

Mr. ROGERS. Is nuclear deterrence the highest priority of the Department of Defense? Does the Obama Administration believe 7% of our defense budget for a decade or so is a price worth paying for modernizing our nuclear deterrent? If top-line budget relief is not provided, does the administration believe it should: (1) make cuts within the nuclear portfolio; (2) make cuts in the conventional portfolio to keep the nuclear portfolio whole?

Mr. MCKEON. 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.

Although multi-decade cost estimates are of questionable utility, we expect the total cost of modernization to be in the \$350 billion to \$450 billion range. Peak projected funding occurs in the 2026–2035 timeframe, with a maximum of \$26 billion in Fiscal Year (FY) 2030. The projected average cost is \$19 billion per year from FY 2017 through FY 2036. The peak fraction of the defense budget will depend on the size of the overall budget at that time, and is currently not known. We can say, however, that \$19 billion to \$26 billion corresponds to 3.3–4.5 percent of the President's FY 2017 budget request. In addition to modernization costs, sustainment and operation of existing nuclear forces and Nuclear Command, Control, & Communications currently accounts for about two percent of the DOD budget.

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.

Mr. ROGERS. Please explain to us why the Administration is pursuing the new air launched cruise missile, the LRSO? Is the Administration's commitment to this capability iron-clad? Does the Administration believe LRSO is destabilizing?

Mr. MCKEON. 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 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. Standoff 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 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.

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

Mr. ROGERS. What is the goal of U.S. nuclear forces? Do we merely wish to "deter" nuclear weapons use against the U.S. and its allies? Do we also plan to "defeat" a nuclear-armed adversary if deterrence fails?

Admiral HANEY. U.S. nuclear forces contribute to our national security interests in peacetime, crisis, and conflict by deterring potential adversaries and assuring allies around the world. They are an indispensable component in preserving strategic stability.

The President's 2010 Nuclear Posture Review (NPR) states that the fundamental role of U.S. nuclear weapons, which will continue as long as nuclear weapons exists, is to deter nuclear attack on the U.S., our allies, and partners—recognizing that there remains a narrow range of contingencies in which U.S. nuclear weapons may still play a role in deterring a conventional or chemical-biological weapon attack against the U.S. or its allies and partners. The NPR also lists five key objectives that frame U.S. nuclear weapons policies and postures. Specifically, preventing nuclear proliferation and nuclear terrorism; reducing the role of U.S. nuclear weapons in U.S. national security strategy; maintaining strategic deterrence and stability at reduced nuclear force levels; strengthening regional deterrence and reassuring U.S. allies and partners; and sustaining a safe, secure, and effective nuclear arsenal. While the NPR provides the framework and guiding principles of U.S. nuclear forces, there is prudence in further articulating the role of these capabilities.

The 2013 Report on the Nuclear Employment Strategy of the United States notes another key objective of U.S. nuclear weapons policies and posture, namely, to contribute to the President's options for achieving U.S. and allied objectives if deterrence fails.

As stated in 2014 Quadrennial Defense Review, our nuclear forces contribute to deterring aggression against U.S. and allied interest in multiple regions, assuring U.S. allies that our extended deterrence guarantees are credible, and demonstrating that we can defeat or counter aggression if deterrence fails. This includes the security and vital interests of our allies and partners in the North Atlantic Treaty Organization, Asia, and the Pacific. U.S. nuclear forces also help convince potential adversaries that they cannot successfully escalate their way out of failed conventional aggression against the United States or our allies and partners.

Further, our extended deterrent reduces the likelihood of nuclear proliferation. Beyond the implications this has for the Nuclear Non-proliferation Treaty, the ability of the U.S. to dissuade acquisition by others minimizes strategic risk. More to the point, the nuclear and conventional dialogue as well as cooperation we enjoy with our allies present a more cohesive and ardent challenge to potential adversaries. Invariably, the U.S. extended deterrence policy guarantees the safety and security of our allies under the any scenario when their very existence and way of life may be threatened.

Ultimately, deterrence is about conducting integrated and combined operations and activities. It requires a comprehensive understanding of the strategic environment from an adversary's point of view. It's about communicating capability and intent. Whether we are deterring aggression in space, cyberspace, or nuclear—our actions and capabilities must convince any adversary that they cannot escalate their way out of a failed conflict—and that restraint is always the better option. Our adversaries must appreciate that the U.S. is not limited to a single domain or axis and that we are capable of responding in a time, place and domain of our choosing.

Mr. ROGERS. Why has the President consistently supported the ICBM leg of the triad? Why does it continue to be relevant? Why is keeping the Milestone A decision on schedule important to you? What are your views on "commonality" in the devel-

opment of the Minuteman III replacement, the Ground-Based Strategic Deterrent (GBSD)?

Admiral HANEY. The Administration's nuclear posture and defense reviews affirmed previous findings that a nuclear Triad delivers the best mix of unique and complimentary capabilities to accomplish our national strategy and policy objectives of deterring adversaries and assuring allies. The Intercontinental Ballistic Missile (ICBM) force continues to provide the most responsive capability that maximizes decision space. ICBMs also provide a highly reliable and cost effective deterrent capability as part of a credible Triad. Any attempt to defeat the geographically dispersed ICBM force would require an adversary to execute a complex strategic attack. This 'high cost to attack' reinforces stability by reducing the incentive for an adversary to execute such a strategy.

Maintaining the development and deployment schedule for Ground-Based Strategic Deterrent (GBSD) is essential; it is a 'just-in-time' program to replace the aged Minuteman III ICBM force. Any program delay would risk introducing strategic capability gaps if GBSD is not deployed in sufficient time to gain confidence in the weapon system prior to Minuteman III retirement.

Commonality between Air Force and Navy ballistic missile programs may offer benefits in terms of decreased development and procurement costs and reduced schedule risk as we modernize both forces. Technical risk associated with common components and subsystems can be effectively managed through wise procurement strategies and robust testing and surveillance programs.

Mr. ROGERS. Should any decisions be made by the services or components that would deprive the President of decision time when it comes to nuclear attacks and nuclear responses?

Admiral HANEY. To maximize Presidential decision space, the United States must sustain and modernize its nuclear deterrence capability. This involves more than just the platforms that make up the nuclear TRIAD, it also requires an appropriate intelligence and sensing apparatus to provide indication and warning of incoming threats; assured National and Nuclear Command, Control and Communications; a credible missile defense system that defends against limited attacks; and a resilient space and cyberspace architecture.

The President's budget for 2017 supports this needed sustainment and modernization. USSTRATCOM continues to work closely with the Services and Office of the Secretary of Defense leadership to ensure the effectiveness of our strategic deterrent capabilities to facilitate current and future strategic capability and maximize Presidential decision space.

Mr. ROGERS. Should we view the ITWAA and NC3 capabilities as legs of the TRIAD? Have we been paying enough attention to ITWAA and its enablers? Are you comfortable with the plan to evolve these capabilities—and that we'll all stick with it—to ensure a survivable capability?

Admiral HANEY. Our nuclear deterrent is foundational to America's defense; it is a synthesis of dedicated sensors, assured command and control, a triad of delivery systems, nuclear weapons, enabling infrastructure, trained and ready people, and treaties and nonproliferation activities. All remain essential to our national security and continue to provide a stabilizing force in the global geopolitical fabric of the world. Each provides unique and complementary attributes that together underpin strategic deterrence and stability.

Integrated Tactical Warning and Attack Assessment (ITW/AA) and Nuclear Command, Control and Communications (NC3) are critical aspects of our comprehensive efforts to achieve deterrence and assurance. Our ITW/AA capabilities provide indications and assessments supporting escalation control options and attack attribution. NC3 assets support our national-decision making process across a spectrum of scenarios, and provide the President and his key advisors the right information to expand decision space.

ITW/AA and NC3 capabilities must be survivable and enduring. They provide the 'connective tissue' of a credible and effective Triad and facilitate comprehensive deterrence, assurance, and escalation control. I am encouraged by the Defense Department's renewed focus on ITW/AA and eagerly anticipate tangible NC3 capability modernization results.

The FY17 President's Budget adequately addresses our ITW/AA and NC3 needs. However, while we have made significant investment gains in these capabilities, we must remain vigilant to safeguard funding identified for recapitalization efforts to ensure capabilities effectively address emerging threats across the conflict spectrum and meet mission requirements, from the President to the warfighter.

Mr. ROGERS. What is the military requirement for extended deterrence in Europe? Why is the life extension of the B61 gravity bomb important to Europe's security?

Admiral HANEY. The three legs of the U.S. Nuclear Triad, nuclear command, control, and communications system (NC3), supporting infrastructure, space and early warning sensors, cyberspace, and ballistic missile defenses are critical components of our strategic deterrent forces that provide unique and complimentary capabilities that deter our adversaries and assure allies and partners. As such, the U.S. remains committed to supporting an appropriate mix of conventional, nuclear and missile defense capabilities to meet NATO deterrence and extended deterrence objectives in Europe. Legacy B61-3/4 weapons are the only U.S. nuclear weapons deployed OCONUS to meet the nuclear portion of our NATO commitment. This is increasingly important to security in Europe as Russia continues to modernize its nuclear forces and make overt threats to NATO countries. These weapons are well beyond their intended service life, and the B61-12 Life Extension Program (LEP) will replace them with a single, modern variant to sustain our commitment to NATO. In addition to meeting NATO commitments the B61-12 is being designed to meet USSTRATCOM requirements and extended deterrent/assurance commitments to allies worldwide including the Asia-Pacific region.

In the next decade, B61-12 will be the sole nuclear gravity bomb in the U.S. stockpile. Gravity weapons offer the most diverse and flexible options to meet both OPLAN requirements and regional scenarios. The B61-12 LEP is an essential element of our stockpile sustainment and modernization strategy and supports our nuclear non-proliferation goals, by ensuring continued support to allies and negating their need to develop their own nuclear programs. Ultimately, the B61-12 will be fielded on legacy (B-2) and future bombers (B-21—Long Range Strike-Bomber) and dual capable aircraft (DCA). This program demonstrates a strong U.S. commitment to modernize and deploy a capable deterrent/assurance force while directly supporting U.S. non-proliferation goals.

Mr. ROGERS. What is the way ahead for the JSPOC (Joint Space Operations Center) and the JICSPOC (Joint Interagency Combined Space Operations Center)? Does it make sense to be maintain two facilities?

Admiral HANEY. The Joint Space Operations Center (JSpOC) at Vandenberg Air Force Base (AFB), is charged with conducting day-to-day operations, to include supporting coalition forces in theater. The Joint Interagency Combined Space Operations Center (JICSpOC) at Schriever AFB will provide an operational experimentation and test environment to develop the tools, relationships, processes and procedures that will be effective in a contested space environment. We are in the process of reviewing the JICSpOC concept while also working to improve JSpOC functionality in the areas of Space Situational Awareness for both commercial and Allied nation systems, and global theater support.

Mr. ROGERS. As you know, the Air Force is completing its analyses of alternatives for the OPIR and AEHF systems. What are the risks of “disaggregation” of these capabilities?

Admiral HANEY. Space capabilities are a vital component of comprehensive deterrence and assurance and are critical to supporting our deployed forces and our national decision-making processes. However, space has become an increasingly contested, degraded, and operationally limited domain. As the threat to our space capabilities continues to rise, so too must the resiliency of our space assets.

Disaggregation is an effort to improve our resiliency in space, and is one of several factors being considered in the development of future Overhead Persistent Infrared (OPIR) and protected Satellite Communications (SATCOM) architectures. The Defense Department continues to assess the benefits and risks associated with different architectures. USSTRATCOM, among other stakeholder organizations, is engaged with Air Force Space Command to carefully examine cost, schedule, performance, protection, resilience, and user segment synchronization and transition risk to inform future investment and strategy decisions. We are confident the potential risks and benefits of disaggregation will be fully explored and accounted for in this process.

Mr. ROGERS. What is your professional military opinion as to why the United States needs LRSO? Can we use JASSM-ER for a nuclear stand-off capability and simply cancel LRSO? Why or why not?

Admiral HANEY. The U.S. needs the Long Range Stand-off (LRSO) cruise missile's range and ability to penetrate air defenses to provide the necessary global target coverage that denies adversaries any geographic sanctuary for high value targets. Maintaining a credible stand-off capability is an essential element of both effective strategic deterrence and extended deterrence to NATO and our Asia-Pacific allies. Sustaining this stand-off capability is especially important as adversaries continue to seek anti-access/area denial (A2AD) advantages that limit U.S. operational effectiveness.

Cancelling the LRSO and using the Joint Air-to-Surface Standoff Missile, Extended Range (JASSM-ER) for a nuclear stand-off capability will not work. JASSM-ER's range is not sufficient to hold adversary targets at risk, and JASSM-ER was never designed to accommodate a nuclear warhead. Re-designing JASSM-ER to increase its range and certify it for nuclear use would require resources and time in excess of those projected for the current LRSO program.

The LRSO cruise missile is needed to replace the aging Air Launched Cruise Missile (ALCM), whose viability will be challenged by advanced air and missile defenses. ALCM is decades past its planned service life, and facing reliability challenges. The LRSO is needed to support the bomber force well into the future.

Mr. ROGERS. What is your professional military opinion as to why the United States needs GBSD? If we simply life extended Minuteman III, would it be capable of meeting your nuclear deterrence requirements? Why or why not?

Admiral HANEY. Our nuclear Triad consists of Intercontinental Ballistic Missiles (ICBMs), Ballistic Missile Submarines, Air-Launched Cruise Missiles, and nuclear capable heavy bombers and associated tankers. Each leg of the Triad provides unique and complementary attributes that together underpin strategic deterrence and stability. The Triad provides a hedge against technical problems or changes in the security environment and must consist of independently viable weapons systems and platforms which present adversaries with a complex, multi-pronged problem.

Our ICBM force provides a responsive, highly reliable and cost effective deterrent capability. The Ground Based Strategic Deterrent (GBSD) is an essential investment to ensure the U.S. maintains an effective land-based strategic ballistic missile capability as part of a credible nuclear Triad. While we have successfully extended Minuteman III several times, continued life extensions will not maintain weapon system effectiveness. This option was assessed as more costly than developing and fielding GBSD. The U.S. will encounter a strategic capability gap if GBSD is not fielded prior to the age-out and retirement of the Minuteman III ICBM.

Mr. ROGERS. What is the minimum number of *Ohio*-class replacement submarines that are required to fulfill STRATCOM's requirements for sea-based deterrence? Please be specific and explain why having only 10 replacement submarines is insufficient.

Admiral HANEY. Our nuclear Triad consists of Intercontinental Ballistic Missiles, Ballistic Missile Submarines, Air-Launched Cruise Missiles, and nuclear capable heavy bombers and associated tankers. Each leg of the Triad provides unique and complementary attributes that together underpin strategic deterrence and stability. The Triad provides a hedge against technical problems or changes in the security environment and must consist of independently viable weapons systems and platforms which present adversaries with a complex, multi-pronged problem.

The *Ohio*-class SSBN fleet is undergoing significant sustainment efforts to maintain our nation's required high operational availability and extend the life of the D5 ballistic missile. Twelve *Ohio*-class Replacement Program (ORP) submarines is the minimum number required to meet USSTRATCOM's sea-based deterrent requirements. The program of record determined this number through detailed analysis of operational requirements, patrol and maintenance cycles, and current/postulated threats. Fielding fewer than 12 ORP submarines would introduce unacceptable strategic capability risk in our most survivable leg of the Triad.

QUESTIONS SUBMITTED BY MR. COOPER

Mr. COOPER. How do we ensure that we effectively deter Russia and other adversaries without increasing risks of undermining strategic stability, increase the risks of miscalculation or causing a nuclear arms race?

Mr. MCKEON. We seek to maintain a nuclear 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 flexibility, responsiveness, and survivability we need to meet and adapt to the challenges of a dynamic 21st century security environment, including those posed by Russia, 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 deterrence threats as they emerge, this approach bolsters strategic stability by decreasing incentives for a future arms race without seeking the ability to negate Russia's strategic deterrent capabilities.

Mr. COOPER. What is DOD's plan to stop reliance on the RD-180 engine and ensure reliable access to space within the next few years?

Admiral HANEY. Space capabilities are a vital component of comprehensive deterrence and assurance and are critical to supporting our deployed forces and our national decision-making processes. However, space has become an increasingly contested, degraded, and operationally limited domain. As the threat to our space capabilities continues to rise, so too must the resiliency of our space assets. Improved launch capabilities will help assure the resiliency of our space-based capabilities.

USSTRATCOM requires effects from the space domain to execute its assigned responsibilities. Critical Space capabilities include communications; Intelligence, Surveillance and Reconnaissance (ISR); missile warning; and Positioning Navigation Timing. We rely heavily upon Air Force Space Command (AFSPC) to deploy these critical systems and are closely coordinating with AFSPC to study options to field reliable and robust domestic launch capabilities.

Mr. COOPER. How do we ensure that we effectively deter Russia and other adversaries without increasing risks of undermining strategic stability, increase the risks of miscalculation or causing a nuclear arms race?

Admiral HANEY. Ensuring a robust deterrent without undermining stability, increasing the risk of miscalculation or causing an arms race was, during the Cold War, a continuously monitored and aggressively studied balancing problem. Post-Cold War, less attention was placed on this problem. Today, we must again more diligently monitor and assess strategic stability.

The basic tenets of strategic stability remain the same. First, stable strategic deterrence is underpinned by force structure and posture that ensure neither the United States nor Russia could gain significant advantage by attempting a disarming first strike on the other's nuclear forces.

Arms control treaties are a second key aspect of managing strategic stability. They provide increased transparency into each nation's activities and provide an upper limit on capabilities. The transparency provided by the New START Treaty has (to date) been adhered to regarding strategic nuclear weapons between the United States and Russia.

Third, interactions with Russia across all elements of the U.S. government are key to ensuring actions taken by both sides do not inadvertently trigger destabilizing activities. While these discussions and exchanges are not a panacea, they are a key component to avoiding misperceptions.

Fourth, we must have a comprehensive understanding and perception of the strategic environment from an adversary's point of view. This requires a robust foundational intelligence capability.

Fifth, we must work diligently to ensure our whole of government activities are internally consistent with our objectives. Words and actions must be unambiguously coherent regarding the National Security Interests of the United States. This is much easier said than done. Thus, there is a need for increased diligence across the U.S. government in this regard.

Finally, we must continue to pursue the modernization of the force in a manner that is consistent with replacing and maintaining the necessary capability, while avoiding the perception of increasing the scale or scope of these capabilities. This must be appropriately balanced given the modernization and development of nuclear weapon capabilities by other nation states that in some cases are expanding their capabilities. Again, increased diligence is necessary to ensure strategic stability is preserved. We must continue to provide a safe, secure, effective and ready nuclear deterrent as a top priority that includes:

- An appropriate intelligence and sensing apparatus to give indications and warnings of incoming threats
- Assured National and Nuclear Command, Control and Communications
- A visible TRIAD of platforms including Intercontinental Ballistic Missiles, Submarine Launched Ballistic Missiles, and Bombers with associated systems that includes an Air Launched Cruise Missile. Refueling tankers are also needed to support the Bomber leg of the TRIAD
- A credible Missile Defense system that defends against limited attacks
- A resilient Space and Cyberspace architecture
- A robust conventional force.

QUESTIONS SUBMITTED BY MR. TAKAI

Mr. TAKAI. How has STRATCOM/JFCC Space reoriented operations to support PACOM?

Mr. McKEON. The Joint Space Operations Center (JSpOC) provides space-based capabilities in support of U.S. Pacific Command (USPACOM) operations. These capabilities include day-to-day missile warning; satellite communications; positioning, navigation, and timing; and nuclear detonation detection capabilities. JSpOC also provides Offensive Space Control (OSC) effects, which influence USPACOM planning for future contingencies.

The Joint Functional Component Command Space (JFCC Space) supports USPACOM through its Non-Kinetic Duty Officer (NKDO). The NKDO offers options for space protection capabilities in the event of an emergent counter-space event in USPACOM's Area of Responsibility. This connection, which is essential to a strong relationship with USPACOM, supports theater operations and protects existing space capabilities.

Mr. TAKAI. Admiral Haney—What is your assessment of the risk to space services that are so vital to our Joint Force? Is risk increasing? How is Strategic Command evolving from operating in space in a peaceful environment, to one which is contested by potential adversaries?

Admiral HANEY. Space is no longer a sanctuary from conflict, and our space forces must be able to contend with both natural and man-made hazards. The risks increase as other nations field and improve capabilities designed to counter the U.S. space advantage.

Recognizing that most organizations share the same risks of operating in the space domain, we are working to meet the challenges through improved partnerships with international and commercial agencies and throughout our Intelligence Community. We are also making meaningful space investments to defend ourselves and assure space operations throughout all levels of conflict.

We are investing in efforts to improve stability, resiliency, and assurance of our space operations. This includes updated Battlefield Management Command and Control (BMC2) systems, integration of Department of Defense and Intelligence Community space capabilities and operations, and building up responsive measures to defend space-enabled capabilities.

Existing and expanding potential adversary capabilities are included in our exercises and learning processes.

We have a deliberate approach as Commander, United States Strategic Command, participates in DOD Defense Space Councils and Deputy's Management Action Groups, and also is a co-chair with Ms. Betty Sapp, Director National Reconnaissance Office, of the Joint Space Doctrine and Tactics Forum (JSDTF). The JSDTF's goals are to ensure U.S. space policy, doctrine, operational concepts, strategies and planning scenarios reflect that space is a contested domain, populated by dynamic actors. Through the JSDTF, we have already made significant improvements in the integration of exercises and wargames, and are revising associated joint doctrine, as well as new tactics, techniques and procedures for our space operators. The JSDTF will foster the transformation of how the U.S. operates in space by promoting seamless functionality between the DOD and Intelligence Community.

Another key initiative is the establishment of the Joint Interagency Combined Space Operations Center (JICSpOC) located at Schriever Air Force Base in Colorado. This center combines the efforts of USSTRATCOM, Air Force Space Command, and the Intelligence Community with a goal to create unity of effort and facilitate information sharing across the national security space enterprise. The JICSpOC will ensure the space enterprise meets and outpaces emerging and advanced space threats and will provide vital information for national leadership, allies, partners and the Joint Force. It will also serve to enhance the Nation's deterrent posture by demonstrating the United States is prepared when our space capabilities are threatened.

Mr. TAKAI. Admiral Haney—As you know, the current U.S. Space Surveillance Network optical sensors can only operate at night. 24/7 monitoring is essential to monitor and defend vital space-based assets. I'm aware of certain proven prototype optical systems capable of daytime and night operations. What are your plans to make that an operational capability?

Admiral HANEY. Space capabilities are a vital component of comprehensive deterrence and assurance and are critical to supporting our deployed forces and our national decision-making processes. However, space has become an increasingly contested, degraded, and operationally limited domain. Our ability to monitor the space environment is increasingly vital given recent advancements in adversary counter-space capabilities. The proof-of-concept work on daylight optical systems is encouraging and points to a potential role for these sensors as a part of our Space Surveillance Network (SSN). We continue to investigate the utility, limitations and cost benefit of this technology to improve our space surveillance capability within resource constraints.

Mr. TAKAI. How has STRATCOM/JFCC Space reoriented operations to support PACOM?

Admiral HANEY. Space capabilities are a vital component of comprehensive deterrence and assurance and are critical to supporting our deployed forces and our national decision-making processes. Our national space capabilities allow us to globally navigate, communicate, and observe events in areas where non-space sensors are not feasible.

USSTRATCOM Joint Functional Component Command Space (JFCC SPACE), through the Joint Space Operations Center (JSpOC), provides space-based capabilities in support of United States Pacific Command (PACOM) operations in the following ways:

- Day-to-day environmental monitoring
- Satellite Communications (SATCOM)
- Positioning, Navigation and Timing capabilities
- Theater Missile Warning Battlespace Awareness
- and Combat Search and Rescue support

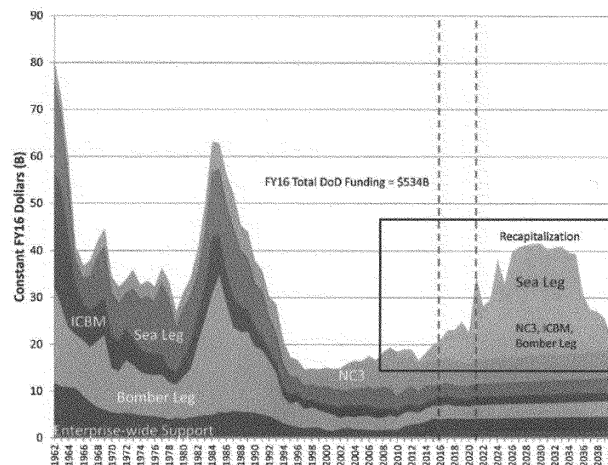
In addition to meeting Department of Defense mission sets, JFCC SPACE provides oversight of the commercial SATCOM systems utilized in PACOM through the Commercial Integration Cell. JFCC SPACE supports allied countries and commercial entities in PACOM through Space Situational Sharing Agreements with USSTRATCOM. These countries include Japan, the Republic of Korea and Australia. Our Pacific Allies rely on JFCC SPACE to provide navigation accuracy through GPS constellation management. USSTRATCOM's Purposeful Interference Response Team, liaisons with JFCC SPACE in ensuring the health and protection of the constellation.

QUESTIONS SUBMITTED BY MR. GARAMENDI

Mr. GARAMENDI. Can you share with the committee the planning (including the estimated development and production timelines and decision points) and cost estimates for nuclear modernization, including for nuclear modernization beyond 2025? When does the funding bow-wave occur?

Mr. MCKEON. The graphic below shows the projected costs and associated timelines for DOD nuclear modernization.[†] Peak projected funding occurs in the 2026–2035 timeframe. The total projected cost from Fiscal Year (FY) 2017 through FY 2036 is \$381 billion, for an average of \$19 billion per year. It should be noted that the Long-Range Strike Bomber will have both nuclear and conventional strike capabilities.

Nuclear Enterprise Recapitalization



The following key development and production dates fall within this time period:

[†] The original graphic submitted is retained in subcommittee files.

- W76–1 Life Extension Program: FY 2019 Production complete;
- B61–12 Life Extension Program: FY 2020 First Production unit (FPU);
- W88 ALT 370: FY 2020 FPU;
- F–35A Dual Capable Aircraft: FY 2025 Nuclear Operational Certification Complete;
- W80–4 warhead: FY 2025 FPU;
- Long-Range Standoff weapon (LRSO): FY 2026 FPU;
- B21 bomber: Mid-2020s initial capability;
- Ground-Based Strategic Deterrent (GBSD): FY 2029 Initial Operational Capability (IOC);
- Interoperable Warhead 1 (IW1): FY 2030 planned FPU;
- OHIO Replacement: FY 2031 First Patrol; and
- IW2: FY2034 planned FPU.

Mr. GARAMENDI. How is the DOD addressing concerns that the Long-Range Stand-Off weapon may be destabilizing?

Mr. MCKEON. We appreciate the opportunities that congressional hearings provide to reiterate publicly the important role of the Long-Range Standoff (LRSO) cruise missile in a nuclear modernization program designed to maintain strategic stability with Russia and China. The LRSO will sustain the deterrent capabilities currently provided by the Air-Launched Cruise Missile (ALCM), which has contributed to strategic stability for decades by providing 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.

The LRSO will help maintain strategic stability at the lowest possible number of nuclear weapons consistent with sustaining options for effective deterrence, and without developing new nuclear warheads.

Mr. GARAMENDI. Can you share with the committee the planning (including the estimated development and production timelines and decision points) and cost estimates for nuclear modernization, including for nuclear modernization beyond 2025? When does the funding bow-wave occur?

The Department of Defense, in cooperation with the National Nuclear Security Agency (NNSA), developed a long-term nuclear modernization and recapitalization plan that maintains a credible strategic deterrent force. The plan delivers required modern and reliable strategic and extended deterrence capabilities as legacy systems retire.

Specifics of the plan, including cost estimates and schedule, are reported in the Defense Department's 'Annual Report on the Plan for the Nuclear Weapons Stockpile, Nuclear Weapons Complex, Nuclear Weapons Delivery Systems, and Nuclear Weapons Command and Control System'.

The nuclear modernization bow-wave starts in or about 2021 and will peak in the mid to late 2020s. Spending on the nuclear enterprise is predicted to rise to 5–6% of U.S. defense spending as specified in the Congressional Budget Office's "Projected Costs of U.S. Nuclear Forces, 2015 to 2024" report. This level of investment is appropriate given the contribution of U.S. nuclear deterrence capabilities to our National security and global stability. If we assume historical averages, funding for the nuclear enterprise should return to 3–4% of the defense budget following this period of critical modernization.

Mr. GARAMENDI. A recent article in the Daily Beast noted a STRATCOM requirement that the new ICBM must be more accurate. Please explain what the added accuracy and capability requirements are for the GBSD. Is the Air Force looking at using technology that the Navy has already developed?

Admiral HANEY. Our nuclear Triad consists of Intercontinental Ballistic Missiles (ICBMs), Ballistic Missile Submarines, Air-Launched Cruise Missiles, and nuclear capable heavy bombers and associated tankers. Each Triad leg provides unique and complementary attributes that together underpin strategic deterrence and stability. The Triad provides a hedge against technical problems or changes in the security environment and must consist of independently viable weapons systems and platforms which present adversaries with a complex, multi-pronged strategic problem. Our ICBM force provides the most responsive capability that maximizes Presidential decision time. The ICBM force also provides a highly reliable and cost effective deterrent capability as part of a credible Triad.

USSTRATCOM fully supports the Air Force plan to develop and deploy a Minuteman III replacement, called the Ground-Based Strategic Deterrent (GBSD), which maintains strategic effectiveness beyond 2030. One component of maintaining ICBM effectiveness is ensuring the missile's accuracy across its full operational range. This

can be affordably accomplished at low technical risk by utilizing existing, mature ballistic missile guidance components which improve performance over 1970s-era Minuteman technology.

The GBSD program is exploring commonality opportunities at the system and subsystem levels to minimize non-recurring engineering cost, reduce lifecycle cost, and gain production efficiencies. Regarding accuracy, the Air Force and industry partners are currently examining existing U.S. Navy Trident II D5 ballistic missile guidance systems to leverage for the GBSD missile.

Mr. GARAMENDI. What contracts does STRATCOM have with universities or think tanks to support nuclear deterrence thinking and policy? What entities are these contracts with and what are the value of these contracts?

Admiral HANEY. USSTRATCOM's University Affiliated Research Center (UARC) for Combating Weapons of Mass Destruction (CWMD) is a 5-year contract in partnership with the University of Nebraska. The purpose of a UARC is to focus a high-level, world-class research university on a specific, enduring, technically hard problem to create a continuity of research, focus and generate unconventional thoughts to solve critical problems, and help train the next generation of strategic thinkers.

There are five task orders directly sponsored by USSTRATCOM/J5 supporting nuclear deterrence thinking and policy and their assigned value is \$500K: Behavioral Influence (\$146K), Deterrence Strategic Stage Set (\$115K), Risk of Extended Deterrence (\$73K), Development/Assessment of Narrative Counter-Narrative (\$95K) and Horizontal and Vertical Nuclear Proliferation (\$71K).

Additionally, USSTRATCOM has formed a Deterrence and Assurance Academic Alliance. The Alliance is not a contracted entity but is a collaborative partnership with 22 regional and national universities. We have four objectives for the Alliance: develop the next generation of deterrence professionals, regularize our relationships with Academia, open a continuous and robust communication with Academia, and stimulate new thinking in deterrence and assurance studies. The Alliance is moving into its second year and continues to grow. We currently have eight student teams and advisors at local universities and three National Defense University STRATCOM Scholars conducting research on deterrence and assurance issues.

Mr. GARAMENDI. Can you share with the committee the analysis that led to the specific number of 50–80 for the requirement for annual pit production? When does DOD require 50–80 pits per year? How many are needed to address geopolitical uncertainty and how many are to address technical uncertainty?

Admiral HANEY. An assessment of the Nuclear Weapon Pit Production Requirements Report to Congress¹, dated January 16, 2014, confirmed the requirement for achieving 50–80 pits per year production capacity by 2030. This requirement was developed from the following factors:

- 1) U.S. policy objectives to maintain a safe, secure and effective nuclear deterrent is contingent on the national capability to produce plutonium pits.
- 2) Pit aging studies conclude pits will not have unlimited lifetimes. Even with pit reuse, plutonium work may be required to assure weapon safety, security and long term reliability to preclude the need for weapon testing.
- 3) The ability to produce plutonium pits in sufficient quantity and timeliness to address technical issues is essential to the long term reduction of the non-deployed weapon stockpile. Future stockpile reductions are central to U.S. non-proliferation goals.

1 P.L. 112–239; FY13 NDAA, Sec. 3147

Mr. GARAMENDI. How is the DOD addressing concerns that the Long-Range Stand-Off weapon may be destabilizing?

Admiral HANEY. Our nuclear Triad consists of Intercontinental Ballistic Missiles (ICBMs), Ballistic Missile Submarines, Air-Launched Cruise Missiles (ALCM), and nuclear capable heavy bombers and associated tankers. Each Triad leg provides unique and complementary attributes that together underpin strategic deterrence and stability. The Long Range Stand-off (LRSO) cruise missile is integral to the air-leg of the Triad and provides the U.S. flexible and tailorable options in response to a wide range of strategic and regional crises. LRSO also presents the adversary a complex problem to defend against.

The LRSO cruise missile is not a 'new' nuclear weapon and, in the context of strategic deterrence, is not destabilizing. LRSO represents a modernization of an existing U.S. nuclear capability. Like the current ALCM, LRSO provides the President a variety of tailorable options to deter adversary nuclear use, including the ability to counter 'escalate-to-deescalate' strategies. Maintaining a credible stand-off nuclear capability contributes to stability by assuring allies of U.S. deterrence commitments and discouraging them from pursuing their own nuclear capabilities.

Mr. GARAMENDI. What can the Long-Range Stand-Off weapon (LRSOs) accomplish that the nuclear ballistic missile submarines and the land-based missiles (ICBMs) cannot?

Admiral HANEY. This Administration's thorough review of the nuclear deterrent force affirmed previous findings that maintaining a credible and effective nuclear Triad, with its unique and complimentary deterrent attributes, represented the best approach to meeting our national security and global stability objectives. The Long Range Stand-off (LRSO) cruise missile is integral to the air-leg of the TRIAD and provides the President flexible and tailorable options in response to a wide range of strategic and regional crises.

The LRSO's range and ability to penetrate air defenses provides the necessary global target coverage that denies adversaries any geographic sanctuary for high value targets. Unlike ballistic missiles, forward deployable LRSO cruise missiles are visible and clearly demonstrate U.S. resolve and commitment to allies and partners. Additionally, LRSO cruise missiles can be rapidly loaded and deployed in response to technical issues or operational vulnerabilities with other TRIAD systems.

Mr. GARAMENDI. In a June 2014 letter on behalf of the Nuclear Weapons Council, Mr. Kendall noted that "without the LRSO's advanced stand-off capability, the bomber leg of the Triad will gradually become a symbol of our decline rather than a bellwether of enduring American strength." If the air-leg of triad will become a symbol of our decline without the LRSO, what is the value of spending at least \$10 billion on modernizing the B61 bomb?

Admiral HANEY. Long Range Stand-off (LRSO) combined with B-21 (Long Range Strike-Bomber) ensures effectiveness in anti-access/area denial environments and has the stand-off range to deny an adversary any geographic sanctuary. The combination of stand-off cruise missiles and gravity weapons offer the most diverse delivery options, providing the President flexible and tailorable options across a wide range of strategic and regional crises. Gravity weapons are the only U.S. nuclear weapons permanently deployed out of the continental U.S., and are essential to maintaining our commitment to the North Atlantic Treaty Organization (NATO).

The B61-12 Life Extension Program (LEP) will provide a modern gravity nuclear weapon to ensure the B-2 bomber remains a viable U.S. nuclear platform for the foreseeable future. The B61-12 LEP will replace the aged B61-3/4/7/10 and B83-1 bombs with a single, modern reliable weapon resulting in ~50% fewer deployed gravity weapons. This significant reduction in the U.S. gravity nuclear weapons stockpile directly supports non-proliferation goals while still maintaining a robust strategic & NATO deterrent capability.

Mr. GARAMENDI. STRATCOM sets requirements for nuclear deterrent, but does not have responsibility to pay for the associated costs of modernizing these platforms. How does STRATCOM evaluate costs?

Admiral HANEY. The Administration's nuclear posture and defense reviews such as the 2010 Nuclear Posture Review, 2013 Report on Nuclear Weapons Employment Strategy, 2014 Quadrennial Defense Review, and the 2015 National Military Strategy affirmed previous findings that a nuclear Triad delivers the best mix of unique and complimentary capabilities to accomplish our national strategy and policy objectives of deterring adversaries and assuring allies. USSTRATCOM works closely with the Services and other stakeholders to ensure the sustainment and modernization programs necessary to support our strategic deterrence and assurance missions are adequately resourced. These efforts are already paying off; joint efforts on fuze modernization are projected to save the Air Force approximately \$600M. Similar efforts promise to continue to pay dividends both in the sustainment of existing and development of follow-on systems. USSTRATCOM also fully participates in the joint requirements validation process, which is cost informed and in Service requirements trade-space deliberations.

The cost to sustain a viable nuclear deterrent is not trivial, but it is important to keep these costs in perspective. Today we spend approximately 3% of the Defense Department's budget in support of the nuclear enterprise. Investments in the nuclear enterprise are projected to rise to 5-6% of defense spending in the next 10 years as specified in the Congressional Budget Office's "Projected Costs of U.S. Nuclear Forces, 2015 to 2024" report. This investment is appropriate given the contribution of our nuclear forces to our National security and global stability. If we assume historical averages, funding for the nuclear enterprise should return to 3-4% of defense spending following this period of critical modernization.

Mr. GARAMENDI. Will the LRSO be more accurate and re-targetable in flight?

Admiral HANEY. Yes, the Long Range Stand-off (LRSO) will be more accurate due to advances in current missile guidance technology than the current Air Launched Cruise Missile which utilizes 1970s technology. There is no requirement to make LRSO re-targetable in flight.

QUESTIONS SUBMITTED BY DR. FLEMING

Dr. FLEMING. Could you comment on the Weapons Storage Facility recapitalization program, in terms of your assessment of the timeline and the importance of the program's plan to restore the Weapons Storage Facility at Barksdale Air Force Base to enable storage and training with weapons at both B-52 operating locations, and could you commit to keep me and this committee updated on this project?

Admiral HANEY. Weapons storage area (WSA) modernization is important to ensuring the Nation's nuclear deterrence capability remains safe, secure, and effective in the decades ahead. The Air Force has a deliberate and comprehensive plan—the Weapons Storage Facility (WSF) Investment Strategy—that will replace existing WSAs with modern WSFs. In the FY17 PB Future Years Defense Program, the Air Force investment includes a WSF at Barksdale Air Force Base beginning in FY18. USSTRATCOM working in partnership with the Air Force, will keep the Committee informed on this project.

Dr. FLEMING. Could you explain why it is important to buy a new long-range standoff weapon (LRSO) given the capabilities available with the Long Range Strike Bomber (LRS-B)? Also, given the importance of the LRSO, it was interesting to see that the NNSA and the Air Force's Fiscal Year 17 requests for this program were lower than expected—does this request allow for this capability to be produced and deployed as scheduled?

Admiral HANEY. The B-21 Long-Range Strike Bomber and Long Range Stand-off (LRSO) cruise missile are essential to meet our nation's strategic deterrence and assurance requirements. Both are integral to the Triad by providing the President flexible and tailorable options in response to a wide range of strategic and regional crises. The B-21 and LRSO's range and ability to penetrate air defenses provides the necessary global target coverage that denies adversaries any geographic sanctuary for high value targets. Maintaining a credible penetrating and stand-off nuclear capability contributes to stability by assuring allies of U.S. deterrence commitments and discouraging them from pursuing their own nuclear capabilities.

Delays in FY16 contract awards reduced the amounts required in FY17. NNSA reduced their PB17 to maintain warhead development synchronization with the Air Force's missile program. The Air Force and NNSA PB17 requests still allow for production and deployment as scheduled to meet USSTRATCOM's deterrence mission requirements.

