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HEARING

ON

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2021

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES
ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON STRATEGIC FORCES HEARING

ON

FISCAL YEAR 2021 STRATEGIC FORCES POSTURE HEARING

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[There were no Documents submitted.]

WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING:
[There were no Questions submitted during the hearing.]

QUESTIONS SUBMITTED BY MEMBERS POST HEARING:
[There were no Questions submitted post hearing.]

FISCAL YEAR 2021 STRATEGIC FORCES POSTURE HEARING

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES,
Washington, DC, Thursday, February 27, 2020.

The subcommittee met, pursuant to call, at 2:55 p.m., in room 2212, Rayburn House Office Building, Hon. Jim Cooper (chairman of the subcommittee) presiding.

Mr. COOPER. The subcommittee will come to order.

I apologize for the 20-minute delay, but I appreciate having such distinguished witnesses before the subcommittee.

We face a high-class problem. You have been kinder to the programs under our jurisdiction, the President's budget, than perhaps we expected or deserved, but we look forward to hearing the justification.

So the first witness will be Dr. Anderson.

Let me ask too, by unanimous consent we will not only accept our honorary member, Mr. Lamborn, for questioning after subcommittee members have asked their questions, but ask unanimous consent that any member's opening statement be inserted for the record.

The ranking member, Mr. Turner, do you have an opening statement?

Okay. Dr. Anderson.

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

STATEMENT OF DR. JAMES H. ANDERSON, PERFORMING THE DUTIES OF UNDER SECRETARY OF DEFENSE FOR POLICY, U.S. DEPARTMENT OF DEFENSE

Dr. ANDERSON. Okay. Chairman Cooper, Ranking Member Turner, and distinguished members of the committee, thank you for the opportunity to testify.

Today the United States faces an increasingly complex global security environment in which the central challenge to our prosperity and security is reemergence of long-term strategic competition by revisionist powers in the PRC [People's Republic of China] and Russia. At the same time we must be prepared to counter the clear and present dangers posed by rogue regimes such as North Korea and Iran. Each of these competitors confronts us with unique and overlapping challenges, and our strategic forces—nuclear, space, and missile defense—offer critical capabilities necessary to meet these challenges.

Nuclear deterrence is the Department's highest priority mission. Our deterrence is the foundation and backstop of our national defense. It underwrites every U.S. military operation around the world and provides extended deterrence guarantees to over 30 allies and partners.

Effective deterrence requires tailored strategies supported by flexible capabilities, capabilities that reside in the nuclear triad. This committee is well aware of the age of its triad systems and the challenge that the Department faces in sustaining these systems as we proceed with modernization, modernizing U.S. nuclear forces after decades of deferred recapitalization.

Last fiscal year Congress funded 98 percent of DOD [Department of Defense] budget requests for nuclear force modernization, operations, and sustainment. We appreciate the support and request continued support.

The fiscal year 2021 budget request for nuclear forces is $28.9 billion or roughly 4.1 percent of the total DOD budget request. Modernization, recapitalization of our nuclear forces is about 1.7 percent of the total DOD budget request.

Funding these critical requirements ensures that modern replacements will be available before the Nation's legacy systems reach the end of their service lives and we lose them all together.

Turning to space systems, they underpin virtually every weapon system in our arsenal. But many of them were designed in an era when there were few threats in space. This is not the case today. The PRC and the Russian Federation both seek to be able to deny the United States and our allies the advantages of space. The United States is responding to this threat by transforming our space enterprise, fielding resilient architectures, developing space warfighting expertise, and working closely with allies in combined operations.

I want to acknowledge and recognize the bipartisan leadership role that this subcommittee played over several years to establish the United States Space Force as a sixth branch of the Armed Forces and to make this historic step possible.

The President's fiscal year 2021 budget request provides $18 billion for space programs, including $111 million to support standup of the new service. In addition to the Space Force, the President's budget also provides for funding of the new Space combatant command, U.S. Space Command, and the Space Development Agency which will accelerate the development and fielding of military space capabilities.

Turning to missile defense. As adversary missile technology advances, the threat to the United States homeland, allies and partners, and our forces in the field has become increasingly dynamic and difficult to predict. While traditional fixed and mobile ballistic threats continue to grow, adversaries are also investing in ground, air, and sea launch cruise missiles, as well as hypersonic weapons with diverse ranges.

Adversaries are incorporating these missile technologies into their strategies to coerce and intimidate the United States and its allies by threatening critical homeland targets, our ability to reinforce allies in crisis or conflict, and our ability to project power.

To address these challenges, the United States is focused on a layered defense with adaptable systems. U.S. policy is to stay ahead of rogue-state missile threats while relying on nuclear deterrence to address the large and more sophisticated Russian and PRC ICBMs [intercontinental ballistic missiles].

Within this framework the 2019 Missile Defense Review centers our policy on, one, defending the homeland, military forces abroad, allies and partners; two, mitigating against adversary coercive threats and attacks; three, assuring allies and partners, preserving the freedom of action; and four, hedging against future unanticipated threats.

In conclusion, I want to thank the subcommittee for the opportunity to testify and its support to our strategic forces. Along with our allies and partners we must ensure that we have the capabilities needed, both now and in the future, to protect our people and the freedoms we cherish, and to be able to engage potential adversaries diplomatically from a position of strength.

To do so I urge you to support the important capabilities funded in the President's fiscal year 2021 budget request.

I look forward to your questions. Thank you.

[The prepared statement of Dr. Anderson can be found in the Appendix on page 32.]

Mr. COOPER. I thank the witness.

General Raymond.

STATEMENT OF GEN JOHN W. RAYMOND, USSF, COMMANDER, UNITED STATES SPACE COMMAND

General RAYMOND. Chairman Cooper, Ranking Member Turner, and members of the subcommittee, it is an honor to appear before you today. I have had the privilege of testifying in front of this subcommittee on many occasions. However, this is my first opportunity to appear since taking command of the United States Space Command in August of 2019 and being appointed the Chief of Space Operations for United States Space Force this past December. I am truly honored and humbled by this responsibility.

On behalf of the joint space professionals that I am privileged to lead, I would like to thank you for your leadership, personally thank you for your leadership, in helping elevate space to a level commensurate with its importance to our national security and the security of our allies.

We have the best in the world at space today and with this historic establishment of a new armed service and combatant command we are even better, and we need to be, as we are laser focused on meeting the requirements of the National Defense Strategy. Both China and Russia continue to build and modernize their space capabilities. They are building capabilities for their own benefit, while also building capabilities to deny us the military and economic advantages that the United States and its allies have enjoyed for decades, an advantage that is eroding.

As I have testified to in the past, the scope, scale, and complexity of the threat in space is real. It is growing and it is concerning. We can no longer assume that our space superiority is a given. If deterrence fails, we must be ready to fight for space superiority; we are today, and with the establishment of the United States Space Com-

mand and the Space Force we will be tomorrow. To this end, U.S. Space Command will deter aggression from conflict and do so from a position of strength. Accordingly, we will remain ready to defend U.S. and allied freedom of action in space.

We will deliver space combat power for the joint coalition force, and we are going to develop joint warfighters to serve in, from, and through the Space Command. Since the establishment of United States Space Command we have strengthened our integration with our combatant command warfighting partners, informed the global integration needed to carry out the National Defense Strategy, advanced our partnership with our allies, and have strengthened our voice and requirements.

I am proud of the joint space warfighters that I am privileged to lead. I assure you these professionals are approaching our mission with an eager and innovative boldness that will assure America remains the world leader in the space domain.

It is an honor also to be here today and testify with Admiral Richard and Dr. Anderson. I look forward to your questions.

[The prepared statement of General Raymond can be found in the Appendix on page 41.]

Mr. COOPER. Thank you, General. Before I introduce Admiral Richard, I want to note that this is the second Alabaman in a row to head STRATCOM [United States Strategic Command]. So congratulations and long may that tradition continue.

Admiral Richard.

STATEMENT OF ADM CHARLES A. RICHARD, USN, COMMANDER, UNITED STATES STRATEGIC COMMAND

Admiral RICHARD. Good afternoon, Chairman Cooper, Ranking Member Turner, and distinguished members of the committee. It is an honor to be here today alongside General Raymond and Dr. Anderson. And it is a privilege to represent the 150,000 men and women performing United States Strategic Command's missions every day.

I would like to start by thanking Congress for your support ensuring that the Department and STRATCOM have the required resources to execute our mission to deter strategic attack and guarantee the security of our Nation and our allies. Continued congressional support, budget stability, on-time appropriations, are fundamental assumptions for a long-view approach to defense and allow our command to realize Presidential and Department guidance.

The proposed fiscal year 2021 budget supports irreversible implementation of the National Defense Strategy, meets our current operational requirements, and outpaces the growing existential threats we face. I want to come back to that point. I want to note that the commitments are necessary, because this Nation faces an existential threat.

Today's security environment is the most challenging we have seen since the Cold War. Both Russia and China are investing considerable resources to advance and expand their arsenals and nuclear and conventional forces while adopting an increasingly assertive posture at the expense of accepted international norms and rules and at the expense of our Nation and our allies. All while North Korea and Iran continue to conduct malign activity, fostering

regional instability, defying international norms and threatening the United States, our allies, and our partners.

I want you to know, as global warfighters, the forces under my command are ready to respond decisively should deterrence fail. A powerful ready triad, survivable nuclear command, control, and communication systems, and the supporting infrastructure are the foundation for strategic deterrence and assurance. These capabilities are fundamental to our survival as a Nation and underpins the Department's strategy to conduct global all-domain operations that communicate the strength of our alliances, the credibility of our forces, and a willingness to act decisively to protect our vital interests in the time and place of our choosing. Strategic deterrence is an active mission and I do operations every day to ensure we have a safe, secure, and effective deterrent. Nevertheless, our Nation is at a critical juncture regarding the future of our nuclear forces.

Over 40 years ago our leaders made wise decisions to recapitalize our strategic capabilities that we have benefited from to this day. Since the end of the Cold War, we have led the world in reducing the numbers and types of nuclear weapons in our arsenal, while at the same time our adversaries went in the other direction and expanded their capabilities.

It is now our generation's turn to make the same wise investments required to deter nuclear use in future great power war for the next few generations. If we do not invest smartly in our nuclear enterprise now, we may begin to reach points of no return. And I predict they will start in the nuclear weapons complex, next in the nuclear command and control, and finally in the triad delivery systems.

It may result in our need to rebuild nearly from scratch over one or more decades our enterprise talent and infrastructure required to be a nuclear power. We must continue the Department's number one priority to recapitalize our nuclear forces and strengthen homeland defense.

Know that our Department's proposals do not pursue parity with our adversaries' arsenals or seek a new arms race or provide a qualitative and comprehensive approach towards a viable deterrent for the future at a time of increasing threats.

Our command is focused on maintaining a safe, secure, and effective deterrent, and providing tailored strategies in coordination with our fellow combatant commanders to meet our responsibilities to the Nation. We are ready to be tested and continue to look for solutions to strengthen military readiness and increase lethality. This includes continuing the seamless transition of space operations to General Raymond and the United States Space Command.

I am grateful for your continued support which will aid in developing the future force necessary to execute the Department's highest priority mission.

Thank you for the opportunity to be here today and I also look forward to your questions.

[The prepared statement of Admiral Richard can be found in the Appendix on page 58.]

Mr. COOPER. Thank you, Admiral.

Thank you, gentlemen.

I am going to withhold most of my questions for the classified session which will be held immediately afterwards in 2337.

I yield now to the ranking member, Mr. Turner.

Mr. TURNER. Thank you, Mr. Chairman.

Admiral Richard, we have been able to have some discussion of the activities that Russia has undertaken for its nuclear arsenal that go well beyond modernization. We use the term modernization frequently when we talk about what Russia has done, but in fact they are fielding absolutely new weapons with new and complete unforeseen capabilities.

The Avangard with its hypersonic capabilities which is deployed. The weapon that has been deployed in violation of the INF [Intermediate-Range Nuclear Forces] Treaty. Their development of Skyfall, where recently we just saw an accident, where they developed a missile that is itself not just a nuclear weapon but also nuclear powered. And Poseidon, where they are looking at a weapon that would go under the ocean unmanned.

Before we go into classified session, I wanted to give you an opportunity in the public session because we are going to have a significant debate of our investment into the NNSA [National Nuclear Security Administration]. There has been a significant increase in the NNSA's funding, which has been needed and necessary if we are going to modernize ours—and we are not trying to do what Russia has done, we are not going to create new nuclear weapons. We are only undertaking the modernization of our current capabilities. We have to invest in the infrastructure to be able to do that. Otherwise, our deterrent won't remain credible.

Could you take a moment in a very public session and give us that picture of what our adversaries are doing and why that is a real threat.

And then secondly, why there is a must in our current efforts to modernize our nuclear enterprises, our triad. And what you see as to the importance of why Congress needs to step up now to ensure you have in the future the capabilities that you currently have. Admiral.

Admiral RICHARD. Thank you, Ranking Member Turner. To summarize, and I will go into more detail in the classified session.

Mr. TURNER. Admiral, I just want to make it clear, telling us in classified session does not help Congress have a debate to be able to conclude budgetary issues. It informs us as to what you know, but the debate on the budget happens in public and it will be contested.

So your statements in public are as much as important as the ones that you are going to make in private. In private you will inform us and make certain that we understand the capabilities and issues. But in public, that is where your language and your words will be entered into our debate.

Admiral RICHARD. Thank you, sir.

So let me summarize. Right. I would characterize what Russia is doing with her strategic and nuclear forces as an explosion in capability. Right? They started long ago. They started in 2006 and it goes beyond a mere, if you will, recapitalization or renewal of their triad. It is everything that Russia has, it is an enormous number

of nontreaty accountable weapons. These are sometimes referred to as nonstrategic.

It is actually—and it is not only the weapons themselves, it is the delivery systems that they use. It is actually probably easier to list the ones Russia has that are not dual capable, i.e., conventional and nuclear, than to list the ones that are, because they almost all are.

On top of that, you mentioned the new capabilities that they are developing: hypersonic glide, nuclear powered cruise, undersea unmanned nuclear powered.

But sir, it goes beyond that, right? They have new command and control. They have new warning systems. They have new doctrine. They are exercising a level that we haven't seen before. They even do civil defense. Right? That is a concept the United States abandoned back in the early sixties. So this is a very comprehensive approach that Russia is undertaking. And in many cases with Russia, you have to look at what they do, not necessarily what they say.

I will draw you an equivalent picture on China, except that China doesn't tell you about it. Russia will tell you exactly what they are doing and why, China does not. But they are also rapidly expanding their capabilities. And a particular concern to me is the fact that what they are doing is inconsistent with their stated no-first-use policy and a more general, minimum deterrent strategy. And while they are very opaque and they don't speak about it very frequently, they will have all the same capabilities that Russia has, giving them all the same options.

And then to your final point is why now? When we talk about the modernization of the triad, what we leave out is the "or else." And the other choice that we have is not to keep what we have. The entire triad is reaching the end of its useful life. And so either we replace what we have now or we start to divest almost on a path to disarmament in the face of this growing threat.

Mr. TURNER. Admiral, Russia has publicly announced that it has deployed hypersonic capable weapons, named I think the Avangard is certainly the name we have given it. Why does that weapon concern you?

Admiral RICHARD. Well, it concerns me for a couple of reasons. One, it is a—you correctly stated that they have a hypersonic glide vehicle, that challenges our warning capability. And we not only base our active defenses on that but I base our posture and response on that as well. Ranking Member, what I back up, is remember, Russia didn't have to do that. Right? That was a choice by their part. China is right behind them in terms of those capabilities.

So in the face of our restraint and in the face of our delaying our recapitalization to the last possible moment that is a great example of going in the exact opposite direction.

Mr. TURNER. Would you consider these weapons provocative?

Admiral RICHARD. They are certainly unhelpful to me in terms of my mission set. It is an additional threat that I am required to work through the strategic deterrence equation in order to defend this Nation.

Mr. TURNER. So while they deploy these weapons that have new capability, brand new weapons, what is the danger if we allow our current capabilities then to decay or degrade?

Admiral RICHARD. We went through a Nuclear Posture Review and determined that we needed tailored strategies for each of our adversaries. And I think that was a wise stack of decisions. The triad is what gives me the capabilities. It is the inherent flexibility in the triad that enables me to execute those strategies. If we don't modernize, I don't have those capabilities anymore. I am at the part where I will have to take the triad apart, if we don't do that. Thankfully, we had wise leaders in the past that gave me a triad to be able to take apart. But that means fundamentally I can't execute the strategy.

There is a number of aspects to that. One important one to mention is the extended deterrence and assurance of commitments that this Nation provides. Without those capabilities I am concerned about the pressure on nonproliferation that will occur.

Mr. TURNER. There are some that say the W93 is a new nuclear weapon. It is not a new weapon. Admiral, answer the question as to a critic that would say that undertaking the W93 is a new weapon, why it is not.

Admiral RICHARD. The W93 I think that is one of those things that makes me proud to be an American. Right? That we can come up with a program of record like the W93, it uses existing designs. It will use existing stockpile components——

Mr. TURNER. Okay, so that means that there is no new pit, right? There is not a new nuclear weapon inside this.

Admiral RICHARD. It will use existing—right now I need an ability in general to be able—we need to get to 30 and regenerate the ability to have pits for any of the weapons. That is it's own constraint right now. But the W93, remember that is my requirement for the reason that I am very pleased to see that the Department is taking these steps. This will enable me to address the simultaneous age-out of both weapons inside the submarine-launched ballistic missile leg. It will enable me to redress the imbalance that we currently have inside that leg. It has—it will be parallel developed with the United Kingdom's efforts in using existing partnership arrangements. And it will be vital to their maintenance and continuation of their continuous at-sea deterrence.

Mr. TURNER. Thank you.

General Raymond, Secretary Esper yesterday spoke of the National Air and Space Intelligence Center [NASIC] at Wright-Patterson Air Force Base which he had just toured and the importance of its contribution overall to our national security. I know you two are very familiar with their operations. And as we go to stand up Space Force, there is obviously throughout the entire DOD enterprise individuals who wonder whether or not their job is moving, or whether or not they are moving, or whether or not they will have a job.

The Secretary has said that he wants to ensure that we don't duplicate efforts, that we don't diminish our current capabilities and capacities. I wonder if you might speak for a moment about the importance of NASIC's overall contributions to national security and our intelligence community?

General RAYMOND. Yes, sir. Thank you for the opportunity.

NASIC has provided excellent technical intelligence for the space domain for years. We rely on them very, very heavily. I will tell you the current strategic environment that was outlined by Admiral Richard applies to space as well. And the need for increased intelligence across the board—foundational, technical, acquisition intelligence—is increasing. And so as we build the Space Force and U.S. Space Command, I don't think anybody should be worried about a job or a growth industry. And I would suggest that we don't want to break something. We want to build on something to enhance it.

Mr. TURNER. General, thank you very much. I yield back.

Mr. COOPER. Thank you.

Mr. Garamendi.

Mr. GARAMENDI. Admiral Richard, did you say our current policy is one of disarmament unless we do all the new things you want done? Is that what I heard you say?

Admiral RICHARD. I didn't say that that was our current policy. What I will give you is the operational implications of our decisions, yes.

Mr. GARAMENDI. I don't understand what that means. If we continue as we are with the safe, secure, reliable, the development of the B–2, B–21, LSRO [Long Range Standoff Weapon] and other delivery systems, is that disarmament?

Admiral RICHARD. I was answering the question if we don't choose to do that. The existing systems we have only have finite lifetimes and they require replacement, which will require a commitment by this Nation to the resources and leadership to replace them. That is my point, sir.

Mr. GARAMENDI. Okay. Are we in the process of replacing?

Admiral RICHARD. We are just at the beginnings of the programs that will be the replacements for the current systems inside the delivery triad.

Mr. GARAMENDI. I see. You said that the W93 is or is not a new weapon?

Admiral RICHARD. The W93 is a new program of record that uses existing designs——

Mr. GARAMENDI . Wait, wait, wait, wait, wait.

Admiral RICHARD [continuing]. To address a need that I have.

Mr. GARAMENDI. Let's answer the question. Is it a new weapon? It is a new program of record. Is it a new weapon?

Admiral RICHARD. It is a—it is a new program of record, sir.

Mr. GARAMENDI. I see. Is it a new weapon then?

Admiral RICHARD. I am going to go back to it is a new program of record. We are just now starting the program.

Mr. GARAMENDI. Okay. This dance is getting us nowhere. Does it use a new pit?

Admiral RICHARD. It hasn't been designed yet, sir. So we have to go do the designs to answer that question. You know, we have to ask first to start the program before we can answer some of these questions.

Mr. GARAMENDI. Why then are we going to build 80 pits a year beginning in 10 years?

Admiral RICHARD. That is necessary overall inside the weapons complex to refurbish the entire stockpile.

Mr. GARAMENDI. Those will only be used for the existing weapons and the LEP [life extension program] of existing weapons?

Admiral RICHARD. I am sorry. Your question again, sir?

Mr. GARAMENDI. My question is, what do you intend to do with the 80 pits a year that are supposed to be or the 30 then 80 pits a year that are to be produced in the next 15 years?

Admiral RICHARD. So actually this is a very good point. They are used overall in the refurbishments of the weapons that we have. And this is a good example of one of the points of no return that I am talking about. In terms of in NNSA's funding is right at the minimum to maintain.

All the Nation has is an ability right now to refurbish existing weapons. If we drop funding, we push the front of a pipeline back that then spills back into the back of the pipeline showing up, and you get to a point—my point here is, you can't recover. And you can't get a bigger pipe in less than 10 years no matter much money you spend. That is the basis of the 80 pit per year requirement.

Mr. GARAMENDI. So what do you intend to use them for?

Admiral RICHARD. Refurbishment of our existing weapons, sir.

Mr. GARAMENDI. Which weapons?

Admiral RICHARD. The whole stockpile, sir. It is all of them.

Mr. GARAMENDI. That is new news. So you are saying that the new pits that are to be produced will be used to replace the existing pits in existing weapons. Is that what I heard you say?

Admiral RICHARD. Sir, that is NNSA's stockpile modernization plan.

Mr. GARAMENDI. Okay. Well we will have a meeting with the NNSA and we will ask them that question too.

So the W93 is a new program of record, but is not a new weapon.

Admiral RICHARD. Again, the W93 is a new program of record. It is done to address an imbalance in the strategic leg. It doesn't require new testing. It is not a new design.

Mr. GARAMENDI. Okay. I am going to yield back my time.

Mr. COOPER. Thank you.

Mr. Bishop.

Mr. BISHOP. Thank you, Mr. Chairman. Gentlemen, thank you for being here. Your answers to Mr. Turner I thought were direct and sobering answers, so thank you for that.

You know, Minuteman III is already 47 years old and in the depot where the maintenance work is done on them, some of the engineers are actually going to eBay to find spare parts, which is not actually a joke. It unfortunately happens.

So let me ask some really simple questions, basic questions about GBSD [Ground Based Strategic Deterrent] if I possibly could. I guess, Admiral, let me start with you.

There are some people, analysts that are saying that dyad is enough, that we could do this with bombers and submarines. If you were to maintain the same level of readiness and deterrence, and you only had a dyad, would you be forced to buy new bombers, new submarines?

Admiral RICHARD. Congressman, maybe if I could, two points. One, that depot you were talking about for the Minuteman III, I

think that is a credit to the Department of Defense and the Air Force. And it shows you the lengths we have gone to to maintain these systems. That weapon system wasn't designed to have a depot. That weapon system was designed to be in service for 10 years. And the fact that the Air Force figured out how to retrofit in a depot maintenance process into that is an extraordinary engineering accomplishment and shows you that it is a credit to what the service is trying to do.

To your answer, look I could give you a specific thing on attributes you lose. But if you take the triad apart, I can't execute tailored deterrent strategies. That is it in a nutshell. And I would have to come back with a different way to go do what the President and the Secretary have told me to do.

Mr. BISHOP. So it wouldn't necessarily be cost efficient to do that?

Admiral RICHARD. It certainly wouldn't be cost efficient.

Mr. BISHOP. Or if you were to say—when people are saying let's wait for this until we have less strife that we are put on, less pressure put on the Air Force budget. If we were to wait 3 to 5 years, that would not be necessarily more cost effective?

Admiral RICHARD. Sir, it certainly wouldn't be more cost effective. And the bottom line is I wouldn't have the capabilities necessary to execute the tailored strategies the Nuclear Posture Review calls for.

Mr. BISHOP. Okay, let's assume then that since these are old weapon systems—I am still talking about the missile system. There is a natural deterioration, there is attrition that comes along with that. If we were not to go forward with the GBSD program, if we were to delay it in any way, shape, or form, how would our adversaries perceive that force reduction?

Admiral RICHARD. It certainly works to their advantage. Again, it takes away our capability. You are quite correct, the systems will age out and start to attrite. It is true for Minuteman III, it is true for all the missile systems in triad.

Mr. BISHOP. And would it make it easier or more difficult to do any kind of arms reduction treaties in the future?

Admiral RICHARD. We would be doing an arms reduction ourselves.

Mr. BISHOP. Unilateral.

Admiral RICHARD. Yes, sir.

Mr. BISHOP. Well, you would probably win that one then.

I am making the assumption that we have had 45 years—there are people talking about just doing a life extension for these 45-year-old missiles. I am assuming that in the 10 years you have been working on this issue that all those criteria, all those factors have been factored into the system before you have made your decision?

Admiral RICHARD. Congressman, that is absolutely correct. We are well past the point of diminishing returns and cost effectiveness to not replace the Minuteman III.

Mr. BISHOP. So in 30 seconds could you just remind me of the purpose for the new system in the first place?

Admiral RICHARD. The purpose for the GBSD, right, is it provides a land-based portion of the strategic triad, it presents the

enemy an intractable targeting problem, it gives you the most responsible leg of the triad, and it provides capabilities that complement the other two legs.

Mr. BISHOP. I certainly hope we move forward with that for a whole bunch of reasons.

I don't know to whom to ask this next question, whether it is you or to the general. Can you get a better name than GBSD? I am sorry, and all due respect, GBSD sounds like a disease we are trying to solve. Coronavirus, GBSD is the new form of it. Can you please come up with a nicer name. Minuteman III is cute.

Admiral RICHARD. Congressman, I will. But that is an Air Force decision. But Navy had the same thing, we used to call it sea-based strategic deterrent, and now we call it *Columbia.* We will do the same thing, I am sure, with GBSD.

Mr. BISHOP. General, do you want to take a stab at that one?

General RAYMOND. Sir, I am in the Space Force.

Mr. BISHOP. Well, there is a Star Wars term coming up here.

Thank you, Mr. Chairman, I yield back.

General RAYMOND. I have heard them all.

Mr. COOPER. Thank you.

Mr. Carbajal.

Mr. CARBAJAL. Thank you very much, Mr. Chair.

Admiral Richard, as commander of STRATCOM, you generate the requirements for our nuclear forces. STRATCOM requirements then drive which warheads the NNSA life extends, maintains, and in what quantities. Correct?

Admiral RICHARD. I originate the requirement. I don't have the authority to approve them. That is done up inside the Department of Defense, but basically, yes.

Mr. CARBAJAL. Thank you.

In the case of the submarine leg, we just completed the life extension of the W76–1 and the development of the W76–2. We are only a couple of years away from finishing the refresh of the W88. Both are expected to last into the late 2030s. Why is starting development of the W93 necessary in 2021? And why was it moved up 2 years?

Admiral RICHARD. So Congressman, kind of, two points on that and this is what happens when you work in a resource constrained environment. Both of those life extensions that you referred to did not life extend the nuclear explosive package inside those weapons, right, we simply didn't have the resources and the pit capacity to be able to do that. So we had to make a choice and so its life extensions were modest. So if you want to replace those weapons or life extend them in the thirties based on historical timelines we need to start now. And that is why the W93 is in the program this year.

So you are asking—your second question really gets into NNSA's budget submission, which I don't have complete visibility on. But what I will note on the fiscal year 2021 is that is the first time where we have synchronized the Department of Defense's budget request along with the NNSA.

So they do a piece of it and then the Navy, or I am sorry the DOD has to marry that up. So we have synchronized them in this budget submission and it is also designed to give us time so that

we don't simultaneously have all three programs starting at the same point in the late thirties.

Mr. CARBAJAL. Thank you. To that end, what is the plan regarding the other warheads on the submarine force? And will one of them be retired?

Admiral RICHARD. See, I think this is the best part about the W93. Again it is another thing that just makes me proud to be an American. Right? One, it is going to wind up initially being a third warhead and we do have to get through the design piece of it. But it gives us an opportunity. Remember, part of where my requirement is coming from is that the ballistic missile submarines that we have today have 20 tubes, *Columbia* has 16. Right? And so I will need capabilities that will address the fact that we don't have as many tubes in the new class of submarines and the overall number of warheads is going down. So we have an opportunity here to address the imbalance between the 76–1s and the W88s. It will not raise the stockpile numbers. Let us finish the design, we might even be able to lower it. And then either do that and leave it as the third weapon or potentially make it a replacement for one of the two that we have. We just need to get through the work.

Mr. CARBAJAL. Thank you. Let me continue. Secretary Esper told us yesterday in the full committee hearing that he hopes to engage soon on the New START [Strategic Arms Reduction Treaty] extension. I have a couple of questions. Do you share General Hyten's view which he testified to last year that insight into Russian forces gained from New START is, quote "unbelievably important" end quote? If New START expired on February 5, 2021, with no follow-on agreements, would your job be easier or harder?

Admiral RICHARD. So in general, Congressman, I testified to this before, I support any arms control agreement that enhances the security of this Nation. General Hyten was correct, right, that New START does provide a level of insight, and it is a confidence building measure, Russia has largely been compliant with it. It does set a limit on the number of strategic weapons they have. All are benefits.

But what it doesn't do is account at all for a class of thousands of weapons that Russia has. They are developing new weapons systems that are not covered by the treaty that are also threats to us and it is a bilateral treaty.

My best military advice would be I would like to have all of that. That would make my job the easiest.

Mr. CARBAJAL. Thank you.

And lastly, General Raymond, being that I have Vandenberg Air Force Base in my district, what are the challenges and opportunities in standing up the Space Development Agency?

General RAYMOND. The Space Development Agency [SDA] actually today works for OSD [Office of the Secretary of Defense] and R&E [Research and Engineering] and what it is designed to do is to go fast. I get asked frequently what keeps you awake at night and there is not a lot. But the thing that does is our ability to go fast. And SDA is designed to be able to go fast, to stay ahead of that threat, and largely looking at disaggregated architectures in space, which would be more resilient.

Mr. CARBAJAL. Thank you. Mr. Chair, I yield back.

Mr. COOPER. Thank you.

Mr. Rogers.

Mr. ROGERS. Thank you, Mr. Chairman.

General Raymond, General Hyten has talked about the all-domains operations being the biggest key to our entire budget in the future, and our ability to compete with a global competitor in the near future at all levels. What role does Space Command play in working that problem? And just to the point you just now made, how are we going to balance advocating to deal with emerging threats while at the same time try to deal with present threats?

General RAYMOND. First of all, Congressman Rogers, the Space Command plays a critical role in it. The J is joint and we are part of that joint team and all-domain is space.

What you will hear referred to as JADC2, Joint All-Domain Command and Control, it is the connective tissue. It is the DNA that brings the full weight of the joint force together to provide advantage for our Nation against any adversary.

A lot of work that we have done, and I know we have testified in front of you before, on enterprise space battle management, was built with this in mind. And so we use open standards, open architectures, unified data libraries to have data more easily—not just among us but also our allies. So we are playing a critical role on that.

On the balancing near term and far term, it is a unique position I am in. As a combatant commander I have a 3-year look if you will. As a service chief I am looking long. And as you look at the budget that we submitted in my Space Force hat it is this balance of making sure we are not taking too much near-term risk by getting to the future faster.

Mr. ROGERS. Great. Admiral Richard, first, Roll Tide.

Admiral RICHARD. Roll Tide.

Mr. ROGERS. We want to get that on the record for the benefit of General Raymond and Chairman Cooper.

Mr. COOPER. We had hoped to avoid that.

General RAYMOND. Go Tigers.

Mr. ROGERS. Admiral Richard, in your opening statement, you referred to the increase in the Russian and Chinese nuclear stockpiles. China you expect to double their stockpile within the next decade and Russia you expect a sizable increase in the near future. Does our current program of record and modernization expand our nuclear forces?

Admiral RICHARD. Congressman, no.

Mr. ROGERS. Okay. A few weeks ago the New York Times column, or a New York Times column, summed up the budget's investment in nuclear modernization by saying, quote, "the President's spending proposal requests money for a new arms race with Russia and with China and restores nuclear weapons as a central to military policy" close quote. Truth is the budget does actually the opposite, doesn't it?

Admiral RICHARD. Congressman, that is correct.

Mr. ROGERS. In your testimony you speak a lot about the age of our current systems and that we have no margin as we move forward with these programs. Do you have enough funding in this

year's budget request for nuclear modernization programs and does the NNSA?

Admiral RICHARD. Congressman, the short answer is yes, I was pleased with the priority the Department placed on it. You heard our Secretary and Chairman testify to that yesterday. So yes, in the main they are fully funded.

Mr. ROGERS. And if you take the warhead modernization program from NNSA on one hand and you take the triad modernization of delivery systems on the other hand are these numbers satisfactory to keep those two things integrated over the next several years?

Admiral RICHARD. Congressman, for this budget, yes.

Mr. ROGERS. Excellent. And finally, are these investments we are making right now, do they plan for the future threat?

Admiral RICHARD. Absolutely, sir.

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

Mr. COOPER. Thank you.

Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman.

I had the chair moved because it was the tallest chair in front of me and I don't know why it ended up in front of me. I think Garamendi put it there.

So thanks for coming. I have a couple of questions for all of you, but I want to start with Mr. Anderson—Dr. Anderson. On the 25th, General Walters testified to SASC, the Senate Armed Services Committee, saying he was in favor of a flexible-first-use policy. Does the Department have a definition of flexible-first-use policy? And is that U.S. policy for nuclear use?

Dr. ANDERSON. So the question of whether to adopt a no-first-use policy has come up periodically over quite some period of time and our approach has been not to adapt a no-first-use policy. And there are essentially several reasons for that. One is if we were to adapt, adopt a no-first-use policy, we think it would undermine the credibility of our nuclear deterrence. It would undermine our security guarantees we——

Mr. LARSEN. I understand all of those arguments. I think we all understand all those arguments. So what is a flexible-first-use policy if not a first-use policy or a no-first-use policy?

Dr. ANDERSON. So as outlined in our Nuclear Posture Review, we reserve the right to use nuclear weapons in extreme circumstances as a first use.

Mr. LARSEN. All right, okay. I wanted to get that clear. That sounds like a first-use policy, not a flexible one or not. The language just didn't sound right.

So I wanted to talk to Admiral Richard and General Raymond. Now that we set up SPACECOM [United States Space Command], and maybe you can give us some—enlighten us here and maybe talk a little bit later. Are there seams between your commands? Have you found them yet? How are you working to close those to tighten up those seams?

Admiral RICHARD. Congressman, let me start, as the proud parents of U.S. Space Command, given that all of General Raymond's responsibilities came from U.S. Strategic Command, I am pleased

in that not only do we not have seams, we are actually serving the Nation better. Right?

General Raymond can get into detail about his sensor manager responsibilities, but he is actually serving missile warning better than we used to do by bringing in his other responsibilities in missile defense and space situational awareness.

So it is anything but seams; we are actually performing better as a result of what I think was a wise decision by the Nation and the Department

Mr. LARSEN. General Raymond.

General RAYMOND. I would agree. We have been very reliant on STRATCOM. When we stood up we took part of Space Command, initial core was about 120 folks that came from U.S. Strategic Command. We have a team embedded in the command today to make sure that if there were any seams that they are glossed over. I am not aware of any seams. I think we have actually—our ability to work together has been enhanced.

Mr. LARSEN. Yeah. Okay.

Admiral Richard, if you are the parent I would note that Mr. Cooper and Mr. Rogers may be the grandparents. I had to put you somewhere in the family tree. I am giving you credit.

General Raymond and Dr. Anderson, have you thought through the role and the increasing reliance on commercial capabilities as well as partnering? And are you looking at it any differently than we looked at it before, before Space Command.

General RAYMOND. We are absolutely relying on commercial space capabilities today. And I think we are going to be more reliant on it in the future. If you look there is a terrible word they use in the space business, but there is an explosion of commercial space and we need to be able to leverage that.

They have a business model that goes faster. They have operational capabilities that are relevant, and we are eager to develop an architecture that capitalizes on that. So I would suggest that we will be doing a lot more commercial work than we have done in the past.

Mr. LARSEN. Where does that sit in your priorities of life?

General RAYMOND. Partnerships is one of the top priorities of both U.S. Space Command and the Space Force. And I would say there are several partnerships that are critical to us, commercial being one, intelligence community being two, and allies being three.

Mr. LARSEN. Dr. Anderson.

Dr. ANDERSON. So I would certainly second that commercial space activities are vitally important and that they will in fact grow going forward and into the future. And I think this has been widely acknowledged not only with the statements from the Department of Defense, but also our National Security Strategy, which is signed by the President of the United States. It talks about the U.S. leadership role in space and also the need for the United States to consider unfettered access to and vital operate—and freedom to operate in space to be of vital interest.

Mr. LARSEN. Yeah. Okay. Thank you.

Mr. COOPER. I thank the gentleman.

Ms. Cheney was going to be recognized next but it is my understanding that she is withholding her questions for the closed session. I appreciate that.

Mrs. Davis.

Mrs. DAVIS. Thank you, Mr. Chairman. And thank you to all of you and I say congratulations as well. You probably know that we were having some concerns and questions in Armed Services Committee over the last 2 days. And I wonder if you could discuss with us the unplanned increase in the NNSA. I understand that that is necessary for modernization. Is that correct? But what drove this increase? And where did you all weigh in on that?

Admiral RICHARD. Ma'am, one, in terms of the history I don't know how to characterize it or not characterize it as an unplanned increase. The requirements that I have asked for in terms of for my needs for the nuclear delivery systems have not changed.

And so this is certainly what is necessary for us to recapitalize the weapons that I have and the weapons complex.

Mrs. DAVIS. Did anybody else want to comment on that? And where is that funding as it exists prior to the increase?

Admiral RICHARD. Ma'am, I am not sure I understand your question.

Mrs. DAVIS. Just wondering whether there are unspent dollars in those accounts that——

Admiral RICHARD. Ma'am, I would have to defer your question to NNSA.

Mrs. DAVIS. Okay. Thank you.

Talk a little bit about the strategic stability that hypersonic weapons brings. As you know, there are different points of view on this in terms of risks, benefits, the messages that we send. Do you consider them strategic weapons?

Admiral RICHARD. Hypersonic? Yes, ma'am.

Mrs. DAVIS. And they get us to the fight faster?

Admiral RICHARD. No. Again——

Mrs. DAVIS. Or how would you talk about——

Admiral RICHARD. This is just another capability. And again, I think it is important to remember that our competitors chose on their own initiatives to add this. Right? In the end to do strategic deterrence, the fundamental equation has not changed. Right?

For whatever action the adversary considers can I either deny their aim or impose a cost greater than what they see. This changes that calculus. And what I have to do is to make sure that I can make it hold such that the benefit of restraint still continues to outweigh the benefit of action.

Mrs. DAVIS. Can we integrate these technologies, hypersonic technologies with our NATO [North Atlantic Treaty Organization] partners?

Admiral RICHARD. Ma'am, again, it depends on whether you are talking about defensive technologies or warning technologies and or our own use of those. In both cases, though, the answer is yes, we can integrate those.

Mrs. DAVIS. Admiral Richard, you know China's arsenal of nuclear warheads is something on the order of one-tenth of what Russia's are? Is that correct?

Admiral RICHARD. For this hearing, yes, ma'am.

Mrs. DAVIS. So in terms of our priority, over the next 5 years, what would that be then in terms of maintaining and pushing to expand limits on Russia's nuclear arsenal? How would you describe that?

Admiral RICHARD. Well, I would describe it, one, ma'am, where China is today is not the trajectory that they are on. Right? So we must make sure we understand where they are going. Their actions are inconsistent with their stated policy both no first use and what you derive as a minimum deterrence strategy. I guess in the end what I would offer is I don't have the luxury of picking which threat to this Nation I am not going to defend.

And so I have to look at the collective of what we face and make sure that for each of those individual competitors I can make that equation hold for all of them all of the time.

Mrs. DAVIS. Anybody else want to weigh in on that? Do you agree?

General RAYMOND. Yes, ma'am.

Mrs. DAVIS. Okay. Thank you.

And our European allies, how are they perceiving the New START treaty and the Open Skies Treaty now? Do we need to—how are you assessing what they have to say about that and what if we withdraw from the treaty, do we have other appropriate agreements in place to ensure that we will be notified of flights over our assets?

Admiral RICHARD. Ma'am, one, if we withdraw from the treaty they wouldn't be able to do flights over our assets. In terms of the—New START itself has not entered in very much into my conversations so I am strictly referring to U.S. Strategic Command. And so I am confident that under any circumstances right now I can continue to provide extended deterrence and assurance commitments to our allies.

Open Skies, I am probably not the best person to answer your question in terms of not having direct responsibility. But I will say that Open Skies provides benefit to our allies. It does not provide very much direct benefit to my command individually. And again there is a confidence building aspect to it that is favorable.

Mrs. DAVIS. I think overall, I think we could—we certainly would be very concerned and they would be very concerned if we do something different.

Admiral RICHARD. Yes, ma'am. I think they would also be equally concerned if one party doesn't comply. So that is the political decision that the Nation will face.

Mrs. DAVIS. Okay. Thank you very much.

I yield back.

Mr. COOPER. Mr. Wilson.

Mr. WILSON. Thank you, Mr. Chairman, and thank each of you for your service. And indeed what a critical time of transitioning to great power competition, but existential threats to American families. As you were citing decisions made decades ago that have had a positive impact, we look forward to working with you to have a positive impact.

And indeed, Admiral, I am grateful to be with you and I am a very grateful Navy dad. My Navy doctor son served in Iraq, but I

am also an Air Force uncle, with a nephew that served in Iraq. So thank all of you for your service.

Admiral, modernizing our nuclear forces and associated infrastructure is necessary to defend the homeland promoting peace through strength. How will the continued atrophy of our strategic nuclear forces impact STRATCOM's ability to deter against strategic attack?

Admiral RICHARD. Well, it would be harmful to it, Senator, in short. And a good example is the submarine. All right? Take the *Ohio*-class submarine; again, all of these things makes me proud to be an American. You thought you were going to get 30 years out of it from those wise decisions you talked about. We actually got 42. Right? What a credit to the people that designed it, built it, maintained it to this point.

But they will start going away in 2027 and there is nothing that can change that. And without that, I start to lose survivability in that leg of the triad.

Mr. WILSON. And having grown up in the holy city of Charleston, I remember the *Nautilus* submarines going back and forth and the consequence of that and that is peace through strength with the implosion of the Soviet Union. So what you have done is so important.

And Dr. Anderson, the President requested at full funding for the plutonium sustainment through both this year and last year to accommodate 80 pits per year by 2030. I appreciate this initiative and want my colleagues to understand how important this is.

If pit production is underfunded, how does this affect our national security over the next 10 to 15 years?

Dr. ANDERSON. So as you suggest, the pit production is crucial to our national security and this is something that we have set these targets, in fact 30 by 2026 and 80 by 2030. And this is absolutely essential to ensure that our nuclear arsenal remains safe, secure, and reliable for deterrent purposes.

I have had the good fortune to visit both facilities, Savannah River and also Los Alamos, where these pits are going to be produced. And I was very favorably impressed by the workforce there, and the professionalism, and the great seriousness with which they take this task. And this is absolutely crucial to maintain the effectiveness and the credibility of our nuclear deterrence.

Mr. WILSON. And additionally, Dr. Anderson, the nuclear modernization efforts are so important. And thank you again for visiting the Savannah River Site firsthand. My constituents are very supportive in your activities. And in fact on November the 28th this year we will be celebrating the 70th anniversary of the Savannah River National Laboratory. And we are very, very grateful.

And how important are the nuclear modernization efforts of the Department of Defense? And what risk do we incur by not adequately funding these programs?

Dr. ANDERSON. As Admiral Richard has emphasized earlier, and I would certainly agree that these modernization programs, these recapitalization programs are absolutely essential to our national security. The legs, the triad, the existing legs are old and they are getting older. And to avoid what would in effect be de facto disarmament, they need to be recapitalized.

As stated before, we are not growing the overall nuclear arsenal, the number of warheads. These are one-for-one replacements with the warheads. And the legs of the triad that are being modernized with the Ground Based Strategic Deterrent, the *Columbia* submarine, and the B–21 Raider will make these systems more reliable, more survivable, more resilient, and therefore more credible.

So as Secretary Esper and the Chairman and many other senior leaders have stated, this is our highest priority in the Department.

Mr. WILSON. Again, thank each of you for your serving, and we look forward in a bipartisan manner to work with you together in the future. I yield back.

Mr. COOPER. Thank you.

Ms. Horn.

Ms. HORN. Thank you, Chairman, and thank you all for being here today. I want to turn the conversation to national security space. So General Raymond, although I don't have the problem with the tall chair that Rick did, I do have a problem with being short so hopefully you can see me.

Turning the conversation to space and the importance of the work you were doing. I have a few things that I would like to hear from you on. First, I think it is clear that we cannot do, you cannot do your jobs, none of you can do your jobs and protect our forces without our space assets. Our national security space assets are absolutely integral. And as we have a growing number of adversaries that are coming into this and making significant investments.

I would just like to start with your assessment, General Raymond, of what the actual threats look like to our national security space environment and then I will follow up with some more specifics; and following on that too, the most direct ways that we are addressing this threat.

General RAYMOND. First of all, thanks for the question. Clearly space is a contested domain. There is a full range of threats. And if you will allow me, I will lay out the full range at this level and I will be happy to go into much more detail in closed session.

But as I mentioned in my opening comments, the scope, scale, and complexity of these threats are real today. Everything from reversible jamming of satellite communications and GPS [Global Positioning System] satellites, to directed energy, to cyber threats, to on-orbit activities—including the one that I just talked about publicly where Russia has launched a satellite, has released another satellite in close proximity to a U.S. satellite, which is concerning—to directed ASATs [anti-satellite weapons] where China shot down one of its own satellites in 2007.

So that full scope and scale is why U.S. Space Command and the United States Space Force are both so important.

Ms. HORN. I agree. And I think the next question is, and there is a lot we can't get to in this session, but just establishing a foundation. I chair the Space and Aeronautics Subcommittee in Science, Space and Technology so with that view of both our national security space environment and our civil space environment, space situational awareness is another critical factor.

And right now that falls to the Air Force essentially, for all of the different aspects of space situational awareness, which is something that we need to address. So in terms of your capability as you

stand up Space Force, as you have been working with Space Command, is addressing and taking space situational awareness on a larger scale out of your domain, is that something that would be helpful, useful? Can you speak to that if we were to move those responsibilities?

General RAYMOND. Move them to the Space Force?

Ms. HORN. No. Having another entity and/or group that would address non national security space related situational issues.

General RAYMOND. I understand. So space situational awareness is foundational to everything that we do in space. And in fact I have changed the terminology that we are using in it. And I am talking about space domain awareness rather than space situational awareness because we have to have a deeper understanding. It is critical that our national security space experts are focused on that deeper understanding.

Today we serve as the space traffic control for the world, the Space Force does, and I don't need to do that in my opinion. You have better things for me to do than that.

We would really like to transfer that over to the Department of Commerce. We are working very closely with the Department of Commerce to do that. We are still going to maintain all of our systems to have that situational awareness and Space Command awareness. But our folks don't need to be the people that open up the Rolodex and make notifications.

Ms. HORN. This is a longer conversation but I think important to establish. And finally, more in closed session I know, but I'd like to know what the biggest challenges that you are facing in standing up Space Force and understanding all of these varying threats right now.

General RAYMOND. We have great opportunity in standing up the Space Force. We have challenges, but I think the opportunities are even greater. And I appreciate, as I said up front, the work that this committee did. The law gives us a lot of flexibility to build this with a clean sheet of paper.

This is a start-up company. And we have an opportunity to not be tied to the past and build a service that is purpose built for this domain. Two challenges that I see. One, we have to be bold and we need to make sure that we are thinking bold enough. And two, as we are bold, we are going to need support to get those initiatives through.

Ms. HORN. Thank you. I yield back.

Mr. COOPER. Thank you.

Mr. Moulton.

Mr. MOULTON. Thank you, Mr. Chairman.

Gentlemen, thank you very much for being here today. We appreciate it.

Admiral Richard, you testified 2 weeks ago that the New START Treaty provides STRATCOM with a vital threat assessment for Russia's strategic nuclear arsenal and that it provides transparency and confidence-building measures that are good for deterrence. So do you support an extension of the New START treaty?

Admiral RICHARD. So Congressman, that is exactly what I said and it is that it gives us insight in terms of the threat levels. Right? It puts a limit on the threat levels.

Mr. MOULTON. And do you think it is a good idea, a realistic idea, to include China in some sort of trilateral agreement in place of START? In place of a New START, rather?

Admiral RICHARD. What China—what I would love to be able to convince China of is the benefits of arms control in general. Right? Forget the numbers. Right? The idea——

Mr. MOULTON. Right but just to be clear, the numbers right now are that China has about a tenth the number of weapons as Russia or thereabouts, maybe around somewhere 300. So we don't exactly want a treaty that equalizes numbers and therefore encourages China to bring its numbers up.

Admiral RICHARD. Right. I would like to encourage China to understand the mutual benefit of arms control, the benefit to China of arms control, confidence-building measures, transparency, avoiding miscalculation. That is what I would like to see added to the table.

Mr. MOULTON. Great. Thank you, Admiral.

I want to move on to some questions about hypersonics because I think it is incredibly important that we counter the emerging technologies from Russia and China. But we also just have to be careful about how we are doing that. One of the things that Russia and China are doing very smartly is they are not countering all our technologies, they are trying to leapfrog us in certain areas. And fundamentally, we will have a closed session to ask some more detailed questions. But in this open session, so that people understand, are hypersonic weapons faster than our existing ballistic missiles?

Admiral RICHARD. Congressman, to your point actually a hypersonic weapon is slower than a ballistic missile.

Mr. MOULTON. It is actually slower. Right. So, another question, is our existing missile defense program designed to protect us from an ICBM attack from Russia?

Admiral RICHARD. By policy our existing missile defense systems are designed to protect us from rogue nations, and intentionally not designed to interfere with either Russia or China's strategic deterrent.

Mr. MOULTON. Right, because the point is we just don't have enough interceptors to counter the type and number——

Admiral RICHARD. It is not only a technically infeasible cost-imposing piece, but there are significant strategic stability concerns if you were to go down those lines.

Mr. MOULTON. Right. So essentially what does protect us is this doctrine of mutually assured destruction.

Admiral RICHARD. I wouldn't call it mutually assured destruction, sir. That is what it was back in the Cold War. I have an ability to impose a cost on them that is greater than that which they seek.

Mr. MOULTON. So our terminology has become more polite since the Cold War. But——

Admiral RICHARD. I will——

Mr. MOULTON [continuing]. Essentially what they can expect is that we will respond in kind. If they shoot 100 missiles our way, we are going to be able to shoot 100 missiles back at them.

Admiral RICHARD. Oh, I might not necessarily recommend that at all, sir. I will simply recommend options that will provide a cost that they will find unacceptable relative to what they are trying to gain.

Mr. MOULTON. Fair enough. So what do we do if Russia or China launches a hypersonic missile?

Admiral RICHARD. I do the same—and I should be very clear, I don't have direct operational responsibility for the missile defense system over North America or in any other theater. I do have worldwide advocacy responsibilities for that. We do the same thing that we do for any other threat to North America which is step one I have to characterize it. I have to understand what it is, how big is it, what its threat——

Mr. MOULTON. How do you characterize that because when a hypersonic missile is launched—I mean look, if Russia launches a whole bunch of ICBMs, we know exactly what is coming at us, we know where they are going and when they are going to land. If they launch one singular hypersonic weapon, Russia or China, we don't know what warhead it is carrying, we don't know where it is going to land, because we can see it launched but we don't know where it is going to go.

Admiral RICHARD. Congressman, I am it not trying to argue with you because you are absolutely correct. We have certain HGV [hypersonic glide vehicle] systems today, because our systems were not designed against them, do challenge us. It is not that we have no ability to characterize the threat to this Nation. The size of the raid alone starts to give me information as to what it might be able to do. We already don't have the ability to characterize the payload on any inbound weapon system to the U.S., hypersonic or not.

Mr. MOULTON. Well, we have a pretty darn good idea what is coming at us if we get an ICBM attack. And this is my point, is just—we only have a few seconds left, but I am very concerned that these weapons are strategically destabilizing and I think that we need to carefully consider that as we determine what our appropriate response to China and Russia's development of hypersonics is.

Admiral RICHARD. Congressman, I would agree with you 100 percent but what I want to assure you is is that I can still today with the threats that we face make sure that there is adequate deterrence to defend——

Mr. MOULTON. I understand that and I appreciate you emphasizing that point. Thank you, Admiral.

Mr. COOPER. Thank you.

Mr. Brooks.

Mr. BROOKS. Thank you, Mr. Chairman.

General Raymond, you have previously highlighted to this committee the importance of modernizing our Nation's fleet of national security launch vehicles in a timely manner. As the Air Force's outline the goals of the national security space launch phase two launch procurement are to encourage competition, assure our access to space, and end our reliance on Russian engines. You have also outlined that two providers is the right number of providers, based on the Air Force's past experience.

So two quick questions. Can you please provide this committee with an update on the program and second, are you still on track to make awards this year?

General RAYMOND. All three of those fundamental tenets—assured access to space, increase competition, get off the RD–180 engine—are on track and we are on track to make an award this summer.

Mr. BROOKS. All right. Thank you.

Admiral Richard, in your written testimony, you highlight the need for a concerted effort to expand and improve existing capabilities for both homeland and regional missile defense. Aside from technology development efforts to field new capabilities 10 years down the road as part of the next-generation interceptor program, what investments to improve the current homeland missile defense system are being made?

Admiral RICHARD. So, Congressman, one, I am responsible for the requirements, right, and the requirements that we have asked to provide, I think, are very sound in terms of our ability to defend against a rogue nation threat. And I think you would be pleased in the budget submission in terms of the additional things that we are asking for.

My biggest priority, as the commander of STRATCOM, gets after improved warning capability that provides me the ability to posture my forces, and I would look to where we are going with our space-based sensing layer and then defer to General Raymond to give you more details on that.

General RAYMOND. Yeah. It is going to be absolutely critical that we develop a missile defense layer in space to be able to get after that warning challenge that you articulated.

Mr. BROOKS. This question is for General Raymond, but if Dr. Anderson or Admiral Richard want to chime in, please feel free to do so. There is great interest around the country as to where this Space Force is going to be located. There is also great interest with respect to the battle command portion of the Space Force.

What are the criteria for the location of the battle command, and in particular, how much focus is there on whether that ultimate site ought to be hardened in order to best stay functional when the missiles fly and the nuclear bombs go off?

General RAYMOND. So there is actually—let me—two parts, as you said. There is a Space Force and a Space Command. Space Force, like the Army, Navy, Air Force, Marines, is going to be headquartered in the Pentagon. That is where all the services are.

Mr. BROOKS. All the top brass will be in the Pentagon. That makes sense.

General RAYMOND. That is where the—so the question that is being analyzed right now is where does U.S. Space Command reside. Today that U.S. Space Command resides in Colorado Springs, so that is where the Joint Force Space Component Command was when we stood up. The Air Force is responsible to do that basing decision. They are going through the analysis as we speak. And sometime later this year, early next year, they will make a decision on where that should be. There is a whole list of criteria.

The Air Force just announced everything from schools to licensing for spouses, all the way up through mission workforce. I mean,

there is a whole laundry list, and I would be happy to come back to you and share that list with you.

Mr. BROOKS. How much weight is given to how hardened the site can be for the location of the battle command?

General RAYMOND. Yeah. So that would be linked in under the mission, make sure that you can—you have an ability to conduct a mission, and we do that in a variety of ways. And, again, in a closed session I could give you more details.

Mr. BROOKS. All right. Thank you, sir.

Anyone else wish to add anything, Dr. Anderson, Admiral Richard?

Admiral RICHARD. No, sir.

Dr. ANDERSON. No, sir.

Mr. BROOKS. All right. Thank you, Mr. Chairman.

Mr. COOPER. Thank you.

Now the patient Mr. Lamborn.

Mr. LAMBORN. Thank you, Mr. Chairman, for having this hearing. Thank the three of you for what you do to protect our country.

General Raymond, I know establishing a new service must be a daunting task. In fact, I commiserate with you. You have to move from Colorado to Washington here anytime now, so good luck with that move. But I applaud you for your leadership so far in this endeavor. Among your challenges is to develop warfighting doctrine, build a force around that doctrine, and educate space professionals.

So on the education aspect, you have plans to establish a space training center of excellence?

General RAYMOND. Thank you, Congressman Lamborn. I think one of the things—first of all, standing up a Space Force is really cool, and it is exciting, and I am honored and absolutely privileged to be a part of this. I have got a great team.

I think there is several things that are foundational to a separate service. One of them is you have to be able to develop your people, and you have to be able to develop your doctrine. I think those two things are foundational to a separate service. So we are doing the organization work as we speak to plan how we will do that. My expectation will be that we will have an organization that is focused on training and development and doctrine.

Mr. LAMBORN. And as a parenthetical, I know that that technical training would be different from and build on the academic and scientific engineering training that people in this Space Force would get at a place like the Air Force Academy in Colorado Springs.

General RAYMOND. Yeah. So where our expectation is, and this—you know, I am—I am telling you the honest to goodness truth as I know it today. Where my expectation is as we begin the development of this is that we have a great opportunity here.

We just published 30—and advertised 30 jobs that were opened at the Pentagon for the Space Force. I think the number was, and don't quote me on this, like 5,000 people applied, a significant number. We have—this is generating interest across the Nation. It is generating interest in our colleges, in our recruiting things.

But I think what will end up happening is that the Air Force will bring in the human capital, raw material, if you will. They will recruit. We will have a space-focused part of that recruiting, but the recruiting machine will leverage the Air Force to keep this light,

lean, and mission focused. We will leverage the Air Force Academy to build. Also we will leverage JROTC [Junior Reserve Officer Training Corps] and OTS [Officer Training School]. And then once folks get commissioned or enlisted in the service, the Space Force will take them and develop them into the space warfighters that they need. That is where our head is today.

Mr. LAMBORN. Excellent. And will National Security Space Institute be a part of this?

General RAYMOND. Absolutely. They are a fundamental part of what we do today. They teach Space 100, 200, 300, the professional development course, and they will be built into that.

Mr. LAMBORN. Excellent. Do you need anything more from us? We are working on the NDAA [National Defense Authorization Act] as we speak. Funding authorities, et cetera?

General RAYMOND. Yes, sir. So we are—one of the tasks that came out of the last NDAA was to come back with a legislative proposal for next year's.

One of the things that the law said today was that this started out by taking folks and missions and capabilities from the Air Force. The Department's vision is that we will broaden this to other services in the future.

Mr. LAMBORN. Okay. Excellent.

Changing gears a little bit, someone told me that there are elements of our Nation's civil space program, which obviously includes manned space travel, that carry over into our national defense space program. These elements are said to add unnecessary paperwork and red tape to national space procurement. Are you aware of any spillover from civil to national space procurement of this nature?

General RAYMOND. No, sir, I am not. I can do some digging and get back to you. We do have a partnership with NASA [National Aeronautics and Space Administration], a strong relationship with NASA. We support the launch operations when—and this year we will start launching humans again. NASA will start launching humans again out of Cape Canaveral. We work—we—in fact, we developed an internship program for some training opportunities, but I am not aware of any spillover on acquisition and things. But I will come back to you.

[The information referred to was not available at the time of printing.]

Mr. LAMBORN. Okay. Thank you. Please do.

And I will save the rest of my questions for the closed session, and I yield back.

Mr. COOPER. Thank you. The open session of the subcommittee will adjourn, and we will reopen almost immediately in 2337 for the closed session. Thank you.

[Whereupon, at 4:10 p.m., the subcommittee proceeded in closed session.]

A P P E N D I X

FEBRUARY 27, 2020

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

FEBRUARY 27, 2020

Opening Statement
Rep. Jim Cooper, Chairman
Subcommittee on Strategic Forces
Feb. 27, 2020

As I thank the unusually distinguished panel of witnesses for testifying, I think their testimony proves to subcommittee members that we have the most important, most interesting, and most worrisome jurisdiction of any committee in the House. We look forward to hearing from Dr. James Anderson, General John Raymond, and Admiral Charles Richard today, both in open and in closed session.

I think job #1 is to understand what America's true defense needs are and then to fully fund those needs, without use of Continuing Resolutions or off-budget financing like Overseas Contingency Spending. The Subcommittee is flattered that the Administration decided to plus-up many of the programs under our jurisdiction, but this does not mean that we automatically should rubber stamp the requests and authorize all the money that is being suggested.

Dr. Anderson notes in his testimony on page 3 that "In FY 2020, Congress funded 98% of DoD's budget request for nuclear force modernization, operations and sustainment, and appropriated 100% of NNSA's budget request for weapons activities." NNSA appears to already have $8 billion left over from past funding requests. There is no question that this subcommittee is pro-defense, even having had to pressure the Pentagon into accepting the Space Force that it had long opposed. So it is something of a surprise to see dramatic increases in funding requests before the Pentagon has proved its case.

Perhaps the witnesses can make the case today, but Congress, as an equal branch of government and the only source of funding, should be skeptical. Congress should never throw money at a problem, even for national defense.

HASC-SF Hearing on President's Fiscal Year 2021 Budget Request for Strategic Forces

Dr. James H. Anderson

Performing the Duties of
Deputy Under Secretary of Defense for Policy

February 27, 2020

Chairman Cooper, Ranking Member Turner, and distinguished Members of the Committee, thank you for the opportunity to testify on the President's Fiscal Year (FY) 2021 Budget Request for Strategic Forces.

The United States faces an extraordinarily complex and increasingly dangerous global security environment, in which the central challenge to our prosperity and security is the reemergence of long-term strategic competition with China and Russia. Our National Defense Strategy focuses squarely on this challenge, but we must also confront the persistent threats posed by rogue regimes such as Iran and North Korea.

Each of these competitors confronts us with both unique and overlapping challenges. Strategic Forces—Nuclear, Space, and Missile Defense—offer critical capabilities necessary to meet these challenges. These capabilities are essential to rebuilding our military strength and restoring our competitive advantage so that we can protect the American people and our allies and partners, advance U.S. influence, promote prosperity, and preserve peace through strength.

The threats we face are immediate, multifaceted, and consequential. Despite decades of U.S. leadership towards smaller arsenals and decreased reliance on nuclear weapons, our strategic competitors moved in the opposite direction, elevating the risk of nuclear weapon use in a conflict to its highest level since the Cold War. Our preeminence in the space domain is under increased pressure as our competitors' counterspace arsenals multiply, threatening key capabilities and raising the risk of adversary miscalculation. Finally, the missile threat has grown dramatically owing to the proliferation of offensive missiles and technological advances; already we see the consequences of this in Iran's conduct in the Middle East.

Collectively, these threats confront us with a daunting reality. Our task at the Department of Defense is to face this reality and to plan accordingly. Our budget submission for

Strategic Forces will restore our military strength where necessary, and preserve, achieve, or extend competitive advantage where possible. These investments will ensure that our military power endures and, in combination with other elements of national power, that we are fully able to meet the increasing challenges to our national security.

Nuclear Threat, Policy, and Posture

Nuclear threats are increasing. Russia is deep into a comprehensive nuclear modernization program that includes every leg of its strategic Triad, novel new nuclear delivery systems (two of which, the *Avangard* hypersonic missile and the *Kinzhal* air-launched ballistic missile, have already been fielded), and an arsenal of approximately 2,000 theater and tactical nuclear weapons of more than a dozen types. The Defense Intelligence Agency estimates the number of Russia's non-strategic nuclear weapons will grow significantly over the next decade. This nuclear arsenal backs a military doctrine that emphasizes the coercive and military value of nuclear weapons, including limited nuclear first-use in a regional context. Putin's boasting about Russia's nuclear modernization program and development of novel systems, and Russia's pattern of brandishing nuclear weapons to coerce—seen most recently in the Crimean crisis as well as threats to Denmark if it joined NATO's missile defense system—reflect the value Russia attaches to using nuclear force as an instrument of intimidation.

Over the next ten years, we believe China will at least double the size of its nuclear stockpile while implementing the most rapid expansion and diversification of its nuclear arsenal in its history. China's nuclear forces include a mix of strategic-range systems capable of striking the U.S. homeland as well as theater-range forces capable of threatening allies and partners, U.S. bases, and forces in the Indo-Pacific region. Diverse and improved capabilities increase the risk China may perceive that these weapons provide it with coercive options in a crisis or conflict. China's continued opacity and resistance to engaging in a meaningful strategic dialogue give us no indication where China's nuclear ambitions may stop.

Finally, the rogue State missile and nuclear threat persists. We have yet to achieve a diplomatic solution to North Korea's nuclear ambitions, and there is little doubt Iran could achieve a nuclear weapon capability rapidly if it decides to pursue it. Accordingly, our nuclear forces and posture must prepare to face a variety of nuclear threats, from diverse challengers with differing capabilities, motivations, and objectives.

Nuclear deterrence is the highest-priority mission of the Department of Defense. Our deterrent is the foundation and backstop of our national defense, underwrites every U.S.

military operation around the world, and provides our extended deterrence guarantees to more than 30 allies and partners.

Nuclear deterrence rests on the ability to convince an adversary that the United States has the resolve and the capability to respond to any contingency. Effective deterrence against the range of threats we face today requires tailored deterrence strategies supported by flexible capabilities. U.S. nuclear forces must provide a range of graduated nuclear response options including a variety of delivery systems and explosive yields to deny the adversary any first-use objectives, impose costs on nuclear use, and deter further nuclear use or escalation.

The diverse capabilities resident in the nuclear Triad, together with forward-deployed dual-capable aircraft (DCA) aircraft in Europe and the supplemental capabilities identified in the 2018 Nuclear Posture Review, provide the flexibility and resilience needed for deterrence in the most cost-effective manner. This committee is well aware of the age of the Triad systems and the challenge DoD faces in sustaining these systems as we proceed with modernizing U.S. nuclear forces after decades of deferred recapitalization. In FY 2020, Congress appropriated 98 percent of DoD's budget request for nuclear force modernization, operations, and sustainment, and appropriated more than 100 percent of the National Nuclear Security Administration (NNSA) budget request for weapons activities. We appreciate this support and request continued support.

The FY 2021 Budget Request funds all critical DoD modernization requirements, helping to ensure that modern replacements will be available before the Nation's legacy systems reach the end of their extended service lives. The FY 2021 Budget Request for nuclear forces is $28.9 billion or roughly 4.1 percent of the DoD budget.

DoD's FY 2021 request also includes $32 million for initial design work on the W93/Mk7 submarine-launched ballistic missile (SLBM). In the coming years, we will see some adjustment to our approach. This warhead and aeroshell will provide U.S. Strategic Command (USSTRATCOM) and the Navy a means to address evolving ballistic missile warhead modernization requirements, mitigate against simultaneous age-out of the W76 and W88 warheads, improve operational effectiveness, and mitigate geopolitical, technical, operational, and programmatic risk in the sea leg of the Triad. Carrying out the W93/Mk7 program is also vital for continuing our longstanding support to the United Kingdom, which is also modernizing its nuclear forces.

This budget request moves us towards a recapitalized nuclear Triad supported by supplemental capabilities to be more effective in deterring potential adversary limited nuclear use strategies, armed with weapons designed to hedge more effectively against

operational, technological, and operational risk. This is not arms racing. This is responsible planning for a nuclear force that we will need to field in the 2030s to provide for deterrence requirements in the decades that follow.

Space Threat, Policy, and Posture

Space systems underpin virtually every weapon system in our arsenal. Positioning information and timing signals from the DoD's Global Positioning System, communications information from military and commercial satellite networks, and imagery and mapping data from military and commercial reconnaissance and Earth observation satellites all support crucial national defense capabilities. But many of these capabilities were designed for an era when there were few threats in space – an era before potential adversaries developed counterspace systems and doctrine that transformed space into a warfighting domain. Now, DoD is rising to meet these challenges by transforming our space enterprise, fielding resilient architectures, developing space warfighting expertise and culture, and working closely with our likeminded allies and partners to integrate space into our combined operations.

China and Russia both see their military options as requiring the ability to deny the United States and allies and partners the advantages of space-based capabilities. China and Russia are developing sophisticated on-orbit capabilities and an array of counterspace weapons capable of targeting nearly every class of U.S. space asset. Likewise, they are both expanding their respective abilities to utilize space and have each created military space forces that they are training and equipping to prevail in future crises and conflicts. The United States is responding to this threat.

The National Defense Authorization Act (NDAA) for FY 2020 established the U.S. Space Force as a new branch of the Armed Forces within the Department of the Air Force. The U.S. Space Force will be responsible for organizing, training, and equipping space forces, focusing full-time on developing the concepts, doctrine, capabilities, and expertise needed to ensure superiority in space that is strategically linked to superiority across all military domains. The U.S. Space Force will present those forces to the Combatant Commands, most notably to U.S. Space Command. DoD is taking a "clean-sheet" approach to designing the Space Force as a twenty-first century Military Service with a streamlined organizational structure. DoD is focused on creating a structure that removes traditional layers of bureaucracy while maintaining clear lines of authority, responsibility, and accountability.

As provided in the National Defense Authorization Act for FY 2020, the duties of the U.S. Space Force are to: "*1) protect the interests of the United States in space; 2) deter*

aggression in, from, and to space; and 3) conduct space operations." The Space Force must be resourced adequately to fulfill these duties. The President's FY 2021 Budget Request provides $18 billion for space programs, including $111 million for the personnel needed to develop the strategic plans, doctrine, tactics, and test and training functions for this new Military Service. In addition to the Space Force, the President's Budget also provides funding for the new space Combatant Command – U.S. Space Command – and the new Space Development Agency, which will accelerate the development and fielding of the new military space capabilities necessary to ensure our technological and military advantage in space.

The United States is not approaching this problem alone. We are actively pursuing opportunities with allies and partners to build combined space operations and interoperable, or even integrated, architectures. DoD is leveraging allied and partner space capabilities to a greater degree than ever before. The flagship of this integration is the Combined Space Operations Center (CSpOC) at Vandenberg Air Force Base, California, with embedded British, Canadian, and Australian exchange personnel, working side-by-side with U.S. personnel. We have recently added Germany and France to the Combined Space Operations initiative.

Missile Defense Threat, Policy, and Posture

As adversary missile technology matures and proliferates, the threat to the U.S. homeland, allies, partners, and our forces in the field becomes increasingly dynamic and difficult to predict. Although traditional fixed and mobile ballistic missile threats continue to grow, adversaries are also investing in ground-, air-, and sea-launched cruise missiles as well as hypersonic weapons with diverse ranges. We see these missile technologies are being incorporated into adversary strategies meant to coerce and intimidate the United States and its allies and partners by threatening critical targets in our homelands, our ability to reinforce allies and partners in a crisis or conflict, and our ability to project power regionally.

Russia and China possess two of the largest short-, medium-, and intermediate-range ballistic missile arsenals that threaten forces abroad, allies and partners, and critical assets. Russia and China are moving beyond ballistic missile technology and progressively investing in advanced cruise and hypersonic missile capabilities meant to counter U.S. and allied missile defenses. In addition, North Korea persists with its long-range missile programs as well as increasingly lethal short-range ballistic missiles. Iran, for its part, possesses well over a thousand missiles – some of which were used in the recent attack on U.S. targets in Iraq – and a space-launch program that could develop into

an ICBM program, should Iran chose to do so. The global missile threat remains extremely fluid and dangerous – recognizing this reality is the foundation for U.S. missile defense policy both now and in the future.

To address these evolving challenges to U.S. and allied security, the United States is focused on a layered defense with adaptable systems to meet the dynamic threat environment. U.S. policy is to stay ahead of rogue State missile threats while relying on nuclear deterrence to address the large and more sophisticated Russian and Chinese ICBMs. Within this framework, our key missile defense policy objectives are centered on the following areas, as articulated in the 2019 Missile Defense Review (MDR): defending the U.S. homeland, our military forces abroad, allies, and partners; diminishing the benefits of adversary coercive threats and attacks; assuring allies and partners that we will stand by our security commitments; preserving our freedom of action to conduct military operations; and hedging against future, unanticipated offensive missile threats. The capabilities and posture described here that support U.S. policy are essential for the credibility of our deterrence, assurance, and damage limitation missions.

The United States is strengthening its homeland missile defenses and is pursuing more advanced capabilities to stay ahead of rogue State threats. Today, the United States is defended by the ground-based missile defense (GMD) system – 44 ground-based interceptors (GBIs) supported by a globally integrated network of sensors and a command and control system. To improve the current GMD system, the FY 2021 budget request includes funds for increasing the current GBI fleet's reliability through hardware and software improvements, deploying a new radar, and improving advanced sensor capabilities. DoD is also developing a new interceptor to meet future threats, the Next Generation Interceptor (NGI), which will incorporate the advanced technology needed to defeat rogue State missile threats. The FY 2021 budget contains $638M for NGI development and risk reduction, and we anticipate it will begin to be fielded in 2028, bringing the total number of GBIs to 64. We are developing a new generation of advanced ground- and space-based sensors to detect, track, and discriminate enemy missile warheads more effectively, including the completion of ground-based radar in Alaska ($132M in FY 2021) and the development of new space-based sensors to track more sophisticated missile threats ($100M in FY21).

Lastly, to hedge against new developments between now and when NGI is operational, DoD is funding options for layered homeland missile defense capabilities to complement the existing GMD system, including a Spring 2020 flight test of the SM-3 Block IIA against an ICBM-class target as well as evaluating the development of a new terminal

high-altitude area defense (THAAD) interceptor to support homeland defense. These DoD is requesting $274M for these layered homeland defense efforts, which, when fully developed, could be available mid-decade.

The United States is also advancing its regional missile defense programs by: increasing our capacity by procuring additional Patriot, THAAD, and sea-based SM-3 and SM-6 interceptors; fielding additional mobile platforms, including more ballistic missile defense (BMD)-capable Aegis ships, to respond more effectively to crises or conflicts; integrating U.S. regional systems such as Patriot, THAAD, Aegis, and their associated radars to expand the area that can be defended and employ interceptors more efficiently; and integrating regional ballistic missile and cruise missile defenses. DoD is also investing in counter-hypersonic capabilities by requesting funding for developing space-based sensors to improve detection, tracking, and discrimination; conducting research and development for defenses against hypersonic missiles, including near-term sensor and command and control upgrades; and defining concepts for a regional glide-phase weapon system.

As part of the National Defense Strategy, DoD is strengthening its alliances and partnerships around the world to be able to deter and defend more effectively against shared missile threats. For example, NATO has an operational BMD capability based upon the Aegis Ashore sites in Romania and the site in Poland, which remains under construction; the Aegis BMD ships assigned to NATO radars like the AN/TPY-2 in Turkey and early-warning radars in the UK and Greenland; and NATO command and control facilities. The United States and Japan are successfully co-producing the SM-3 IIA interceptor, and Japan is also in the process of procuring two Aegis Ashore BMD systems, which will add to Japan's layered defense posture. The United States is also cooperating with South Korea to upgrade its PAC-2 batteries to the more advanced PAC-3 system. South Korea also hosts a U.S. THAAD battery, which complements U.S. and Republic of Korea Patriot units on the Korean Peninsula providing for a layered defense against missile attack. In the Gulf, Saudi Arabia and the United Arab Emirates (UAE) have conducted many dozens of successful intercepts of hostile missile attacks. Finally, our budget request continues the longstanding support for U.S.-Israeli cooperation on missile defense – highlighted today by our cooperation on the David's Sling weapon system to counter short-range ballistic missiles SRBMs and cruise missiles, and the Arrow-3 hit-to-kill interceptor to address regional ballistic missile threats. The U.S. Army is also procuring two Iron Dome batteries, co-produced with Israel, that will aid in cruise missile defense. U.S. cooperation with allies and partners strengthens deterrence and

provides assurance essential to the unity of our alliances and partnerships that are threatened by missile coercion and attacks.

Conclusion

Mr. Chairman, let me conclude by reiterating that these strategic capabilities are essential to achieving our national defense strategy. In an increasingly complex and threatening security environment, DoD must sustain the capabilities needed to deter and defend against attacks on our homeland, U.S. forces deployed abroad, allies, and partners. We must make the investments necessary to reverse the erosion of our military capabilities, restore our competitive advantages, and remain the preeminent military power in the world.

To do so, I urge you to support the important capabilities outlined in the President's FY 2021 budget request.

Thank you again for the opportunity to testify. I look forward to your questions.

Dr. James H. Anderson
Performing the Duties of Deputy Under Secretary of Defense for Policy

Dr. James H. Anderson is currently Performing the Duties of Deputy Under Secretary of Defense for Policy. Dr. James H. Anderson was confirmed by the U.S. Senate on August 28, 2018 as Assistant Secretary of Defense for Strategy, Plans, and Capabilities. Dr. Anderson is responsible for advising the Secretary of Defense and the Under Secretary of Defense for Policy on national security and defense strategy; the forces and contingency plans necessary to implement defense strategy; nuclear deterrence and missile defense policy; and security cooperation plans and policies. Dr. Anderson ensures that the Department's program, budget, and posture decisions support and advance senior DoD leaders' strategic direction.

Prior to this appointment, Dr. James H. Anderson served three years as the Vice President for Academic Affairs at the Marine Corps University. In this capacity, he supervised academic programs that educate thousands of Marines annually. From 2012 to 2015, he was Dean of Academics and Deputy Director at the Marine Corps War College. From 2009 to 2012, he worked as Professor of International and Security Studies at the George C. Marshall Center for European Security Studies, where he directed the Program in Advanced Security Studies. Dr. Anderson served in the Office of the Secretary of Defense from 2001 to 2009, where he was Director of Middle East Policy in International Security Affairs, among other positions.

In addition to his Pentagon service, Dr. Anderson worked as an Associate at DFI International, a private consulting firm; a Research Fellow at The Heritage Foundation, a Washington think tank; and an Associate Professor of International Relations at Command and Staff College, Marine Corps University. He has also taught courses at National Defense University, George Washington University, Lasell College, and the University of Phoenix.

He is the co-author of Leading Dynamic Seminars: A Practical Handbook for University Educators (Palgrave Macmillian, 2013). He is the author of America at Risk: The Citizen's Guide to Missile Defense (Heritage Foundation, 1999), and has written numerous articles and op-eds on a wide range of national security topics.

Earlier in his career, Dr. Anderson served three years on active duty as an intelligence officer in the United States Marine Corps, and then became a reservist in the Individual Ready Reserve.

Dr. Anderson earned his Doctorate in International Relations and Masters of Arts in Law and Diplomacy from the Fletcher School, Tufts University. He graduated Magna Cum Laude from Amherst College with a Bachelor of Arts in Philosophy.

He is a recipient of the Department of the Army Superior Civilian Service Award (2012) and the Office of the Secretary of Defense Medal for Exceptional Public Service (2009).

HOUSE ARMED SERVICES COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

UNITED STATES SPACE COMMAND

PRESENTATION TO THE

SUBCOMMITTEE ON STRATEGIC FORCES

HOUSE ARMED SERVICES COMMITTEE

U.S. HOUSE OF REPRESENTATIVES

SUBJECT: Fiscal Year 2021 Priorities and Posture of the United States Space Command

STATEMENT OF: General John W. Raymond, USSF

Commander, United States Space Command

27 February 2020

NOT FOR PUBLICATION UNTIL RELEASED BY THE
SUBCOMMITTEE ON STRATEGIC FORCES
HOUSE ARMED SERVICES COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

INTRODUCTION

The Global Security Environment

Today's complex global security environment presents challenges more significant than we have seen in many years. As highlighted in our National Defense Strategy (NDS), we are facing the "reemergence of long-term, strategic competition characterized by overt challenges to the free and open international order." That formidable threat is particularly acute in the space domain. In the past, our ability to provide space capabilities – such as satellite communications and precision navigation and timing – was largely uncontested.. However, today, our potential adversaries have and continue to develop and field counterspace systems based on what they have learned over the past three decades of observing our success in space. Additionally, they understand the force multiplier space has become and are seeking to take advantage of those same benefits for their own forces. As a result, we can no longer assume that our space superiority is a given. Space is now a warfighting domain, formally acknowledged in the National Space Strategy approved by the President in March 2018. We must prepare to fight for space superiority, and if compelled to fight, we must win. We are ready for that fight today should it come, and we are moving rapidly to ensure we will sustain that readiness in the future.

Elevating the Space Warfighting and Organize, Train and Equip Functions

In August 2019, the United States established the United States Space Command (USSPACECOM) as our nation's 11th Combatant Command, elevating the space warfighting function from a component command of United States Strategic Command, to a singularly focused, independent Geographic Combatant Command. Additionally, in December 2019, the

United States established the United States Space Force (USSF) within the Department of the Air Force as the sixth branch of our Armed Forces, elevating space to be on par with land, air, and sea. In keeping with the structure directed by the Goldwater-Nichols Defense Reorganization Act of 1986, these streamlined, complementary organizations established military space functions to reflect our space warfighting mission imperatives. USSPACECOM, now with a distinctly defined Area of Responsibility beginning at 100 kilometers above mean sea level and extending indefinitely into space, is responsible for Joint and Combined warfighting in, from, and through space. The USSF will organize, train, and equip space warfighting forces for presentation to Combatant Commanders and their Joint and Combined forces. Together, these two lean and agile organizations form the core of our capability to protect and defend U.S. and allied interests in space.

THE MISSION

The USSPACECOM mission is to deter aggression and conflict, defend U.S. and allied freedom of action, deliver space combat power for the Joint and Combined force, and develop Joint warfighters to advance U.S. and allied interests in, from, and through the space domain.

Our primary objective will always be deterrence, with the goal of dissuading any conflict from beginning in, or extending to space. To do that effectively, we must deter from a position of strength. To that end, our singular focus is on warfighting grounded in combat effectiveness, and embodied by space warfighters driven toward mission execution through a culture of excellence. In short, USSPACECOM is one unified team with combat ready forces prepared to fight for and preserve United States and allied space superiority.

The USSPACECOM mission set, born from clear national-level strategic guidance, informed by Joint mission analysis, honed through the Joint planning and war-gaming process, and synchronized across all combatant commands, provides the framework through which we ensure United States and allied space superiority. We will build to Full Operational Capability (FOC) in the following four focus areas:

Deter Aggression/Conflict: USSPACECOM strengthens national deterrence through the provision of space warfighting options that preserve the United States and allied competitive advantage, and promote security and stability.

Defend U.S. and Allied Interests: If deterrence fails, USSPACECOM, in coordination with strong allied and Joint force commanders and inter-agency partners, will lead the protection and defense of our Combined interests in the space domain.

Deliver Space Combat Power: USSPACECOM is committed to providing and expanding space combat power to enable Joint and Combined force success.

Develop Ready and Lethal Joint Warfighters: USSPACECOM will improve the development of space operations forces and capabilities to enhance space warfighting readiness and lethality while accelerating the integration of space capabilities into other warfighting forces.

THE THREAT – Increasing Scope Scale and Complexity

Potential adversaries are determined to negate the military and economic advantages the United States and its allies have enjoyed for decades, developing capabilities and behaving in ways that

have turned space into a warfighting domain. They seek to exploit our reliance on space-based systems that fuel the American way of life, and the American way of war. As a result, it is imperative that we acknowledge this shift, and prepare accordingly, just as we do in the air, land, sea, and cyber domains.

Peer and Near-Peer Competitors

China. China's aggressiveness in civil and military space advancements is unmatched among peer competitors. They continue to field a robust and growing fleet of remote sensing satellites and space surveillance capabilities, while improving their space launch systems to achieve quick-response deployment of low-earth orbit small satellites.

In 2015, China merged their information warfare forces into a new Strategic Support Force, seeking to advance space and counterspace capabilities. They are developing sophisticated on-orbit counterspace systems capable of damaging, disrupting or destroying satellites as far out as geosynchronous orbit. Finally, China has a fleet of jammers capable of targeting reconnaissance platforms, disrupting military communications and our Global Positioning System satellites, as well as ground-based lasers capable of disrupting or damaging satellite sensors in low earth orbit. The United States' clear advantage in space, including access to space, is eroding.

Russia. Recognizing the significance of space in future conflicts, Russia continues to modernize its space capabilities to neutralize our advantage. In 2015, they created the space superiority-focused Russian Federation Aerospace Forces, and invested in space-based intelligence, surveillance and reconnaissance, space launch vehicles, and space-based position, navigation and timing capabilities. Russia views counterspace capabilities as essential for disrupting U.S.

command and control, communications, and intelligence capabilities, and is developing ground-based mobile missile systems that threaten low earth orbit assets. Additionally, they are likely developing laser weapons to disrupt, degrade, or damage satellites and sensors, as well as operating on-orbit satellites which have demonstrated behavior consistent with the characteristics of weapon systems.

To amplify, last November the Russian government launched what they describe as an "inspector" satellite that has since been detected maneuvering and testing near a U.S. government satellite. This new satellite displayed characteristics similar to a Russian satellite launched in 2017 that eventually deployed a high speed projectile into space. In any other domain, similar behavior would be interpreted as potentially threatening, and these behaviors do not reflect the behavior of responsible space faring nations.

North Korea, Iran, and Other Asymmetric Threats. Other less capable, but equally aggressive competitors continue to advance their own ability to threaten space using cyber-attacks, jamming, and electronic attacks with the objective of disrupting, denying, deceiving or degrading our space capabilities, while holding our infrastructure at risk. Both North Korea and Iran maintain independent space launch capabilities as avenues for achieving nascent satellite placement and testing ballistic missile technology.

Competitors and potential adversaries will continue to target vulnerabilities tied to friendly reliance on space. Our role is to prevent them from being successful in those endeavors.

USSPACECOM PRIORITIES

To execute our assigned missions and continue to outpace our closing adversaries, we must address the inevitable challenges of a new combatant command. As we build this command our priorities are fully nested under the Department's priorities of 1) Building a more lethal force, 2) Strengthening Allies and Attract New Partners, and 3) Reforming the Department. USSPACECOM is building necessary structures for combat effectiveness, adapting and developing combat operations for a new domain; strengthening partnerships with the Intelligence Community, our Allies and Commercial Industry; and solidifying a warrior culture.

Building a More Lethal Force

Our most immediate priority is to fully assume responsibility for the space missions previously assigned to United States Strategic Command and execute those missions without degradation. Additionally, our Unified Command Plan assigned missions have a much sharper focus on conducting offensive and defensive operations, protecting and defending U.S. and partner satellites, and developing Space Warfighters.

Operational Components

Combined Force Space Component Command (CFSCC).

The newly established CFSCC, headquartered at Vandenberg Air Force Base, provides space combat effects to the Joint and Combined Force, while executing enduring, no-fail space effects missions without degradation while rapidly evolving to meet emerging missions in the space domain. This combined command represents a first for our nation and amplifies the growing importance of working with our allied partners. The CFSCC now delivers seamless combat effects through four joint centers. The Combined Space Operations Center is the focal point for

the operational employment of worldwide Combined space forces, and provides the integration of space power into global military operations of every conceivable type. The Joint Navigation Warfare Center focuses on ensuring that position, navigation, and timing data remains accurate and available to the millions of worldwide civil and military users, while providing PNT superiority capabilities for the nation. The Joint Overhead Persistent Infrared Center ensures exquisite USSPACECOM and Intelligence Community collection capabilities continue to provide the information that enables unmatched U.S. overhead early warning superiority. Finally, the Missile Warning Center ascertains and rapidly disseminates worldwide missile launch data, ensuring our warfighters, missile defenders and National Command Authority can respond to the full array of missile threats. These organizations are leading the way in addressing a host of emerging space-based challenges and issues such as the rise of mega-constellations, the emergence of hypersonic technology, global satellite communications, friendly force tracking and sensor management.

Joint Task Force – Space Defense (JTF-SD).

A contested space domain requires new thinking in planning, integrating and executing operations in an operating environment which demands a laser-focused organization. The newly formed JTF-SD, located at Schriever Air Force Base, is a fully Joint and interagency organization that brings Department of Defense (DoD) and Intelligence Community (IC) authorities, mission partners, and commercial systems to the fight. This critical joint command represents another first for our nation. It synchronizes planning, conducts experiments and exercises and supports synchronized space superiority through Battle Management Command and Control. It conducts space superiority operations, supports deterrence, defends our space

capabilities, and provides options to counter potential adversaries in the space domain. It is home to a warfighting-focused operations center, the National Space Defense Center.

JTF-SD has already taken great strides in improving mission partner collaboration by implementing an Operations Order tri-signed by the JTF commander, senior IC representatives and the National Reconnaissance Office (NRO) Mission Operations Division Director. The Intelligence Community will now take direction from the USSPACECOM Commander in order to protect and defend their capabilities. JTF-SD is conducting exercises with the NRO to refine this critical relationships, and is executing three Sprint Advanced Concept Training events involving multiple DoD, IC, and interagency partner organizations to mature the space superiority mission.

Integrated Planning Elements (IPEs).

In building a more lethal force it is an imperative that we integrate effectively with our combatant command partners. The interdependence between combatant commands, consistent with the Chairman's Joint Concept for Integrated Campaigning, is at an all-time high. USSPACECOM plays a critical role in this global integration.

Immediately upon establishment, USSPACECOM began building and embedding IPEs into the Headquarters of our fellow Combatant Commands. IPEs provide an expert space presence on combatant command staffs to integrate capabilities and effects into planning and operations, synchronized with the timing and tempo of the supported command. These teams, currently established at USSTRATCOM, USEUCOM, and recently providing support to INDOPACOM during the Global Integration Exercise, are already delivering enabling support and impactful

effects, filling a Joint space expertise gap at the Joint combatant command level. We will continue to build these game-changing IPEs, establishing them globally throughout 2020.

Developing Joint Space Warfighters

A critical enabler to increasing our lethality is the development of joint space warfighters. It is clear that a warrior ethos is a combat enabler. We must take our existing space warfighting culture, established by the first USSPACECOM, honed in the Cold War, and hardened in several conflicts since, and adapt it to today's strategic environment. To further cultivate that essential warrior ethos among our cadre of space operators, we regularly participate in and drive advanced, coalition-integrated exercises and rehearsals such as the Schriever Wargame, USSF's Space Flag, and JTF-SD's Space Defense Sprint Advanced Concept Training. These events push our operators to resolve the complex challenges of deterring and defeating adversary aggression while providing combat effects in, from, and through space. The concepts developed must translate into game changing tactics we can employ today and enhance for tomorrow.

The National Defense Strategy Commission recommended developing "a space cadre that ensures an enduring focus on space capabilities" as part of the overarching effort to build "a more lethal and ready force." The ability to fight and win in the new warfighting domain is the direct result of our investment in technologically advanced systems, but is assured by the outstanding Soldiers, Sailors, Airmen, Marines, and Space Force professionals who plan for, prepare and operate these platforms. Our warfighters are the real source of USSPACECOM's combat power, and we are deliberate in our process to attract, develop, educate, and retain warrior-minded space experts.

Strengthen Allies and Attract New Partnerships:

The United States cannot preserve the peaceful use of space unilaterally. Retaining space superiority requires a combined approach. Not only do partners bring critical resiliency and burden sharing, teaming with allies and the commercial sector also helps strengthen deterrence by complicating a potential adversary's cost-benefit calculations. USSPACECOM remains committed to incorporating enhanced government-commercial relationships and international collaboration with key allies and partners while leveraging commercial space technology. We have accelerated and expanded allied participation in space operations, exercises, war games, and education because America has always been stronger when working with our allies and partners. This past year we have expanded our international partner training opportunities by over 577% percent. We must continue to broaden and strengthen those partnerships, even as we recognize the incredible progress which has been made through the establishment of Operation Olympic Defender, our day-to-day named operation for USSPACECOM, which now for the first time includes opportunity for combined participation.

USSPACECOM's Combined Space Operations Center now incorporates representatives from Canada, the United Kingdom, and Australia into its activities and daily battle rhythm. We enhanced our Multi-National Space Collaboration Office at Vandenberg AFB to empower Liaison Officers from Germany, France, and the United Kingdom in order to align policies and TTPs. We are actively working to expand this office by adding Japan, Italy, and South Korea to our collaboration efforts. This year we also established a Combined command and control facility focused on planning and executing combined special access program capabilities. This is another first for the Department of Defense.

In November 2019, I traveled to Brussels and briefed the NATO Military Committee on the need for greater cooperation, collaboration, and shared norms of responsible behavior for space operations. A month later, President Trump and other NATO leaders declared space "an operational domain, recognizing its importance in keeping us safe and tackling security challenges, while upholding international law." Further, we are working with NATO's Supreme Allied Commander Europe and Supreme Allied Command Transformation and their staffs on ways to better integrate USSPACECOM support into NATO operations.

U.S. leadership in space is clearly resonating across the globe. France established its own space command in September, 2019; the United Kingdom has elevated space within their Ministry of Defense; and Japan has announced plans to build a space organization within their Self Defense Force. In November 2019 and February 2020, Germany and France, respectively, formally joined our Combined Space Operations Council.

We have expanded Shared Early Warning (SEW) agreements with nine international partners, including NATO, Israel, Japan, Jordan, Kuwait, Saudi Arabia, Republic of Korea, Taiwan, and the United Arab Emirates. We have also broadened SATCOM agreements with Australia, Canada, Netherlands, Denmark, Luxembourg, New Zealand, and the United Kingdom. In 2019, we conducted sixteen field experiments with several nations, including Australia, Canada, France, Germany, Italy, Japan, South Korea, Spain, and the United Kingdom.

In addition to our rapidly expanding international partnerships, we are partnering with the Department of Commerce to leverage private sector innovation to keep pace with the quickly evolving capabilities in the space domain. What was once slowly acquired, government-developed technology is now more quickly driven by industry. We are expanding our

commercial partnerships to harness technology and effective business practices and are increasing collaboration with the expansion of the CSpOC's Commercial Integration Cell to eight companies to optimize our network of satellite communications partnering and space situational awareness data.

Reform the Department.

The establishment of both United States Space Command and the United States Space Force are critical Department of Defense reforms to meet the challenges delineated in the National Space Strategy and the National Defense Strategy. We are committed to building these organizations in a way that maximize agility and lethality and allows us to respond across great distances in tactically relevant timelines.

We are aggressively working towards a conditions-based Initial Operational Capability (IOC) declaration for USSPACECOM. We have refined our roles and responsibilities, strengthened our partnerships, and have identified the needed authorities necessary to conduct our UCP assigned missions. We are in the process of finalizing our service components and onboarding the staff necessary to achieve IOC. Full Operational Capability will occur when combat forces are fully integrated internally, capabilities are fully established, and facilities are in place and functioning.

THE WAY AHEAD

In the short time since establishment, USSPACECOM has made remarkable progress. We are establishing, aligning, and normalizing new and existing command and control nodes, baselining and integrating existing forces and weapons systems while advocating for new ways to meet emerging threats. We have designed our operational battle rhythm to synchronize with our partner combatant commands' timing and operational tempos worldwide.

In 1957, General Bernard Schriever first articulated his prescient vision of space as a warfighting domain, telling a scientific gathering, "In the long haul, our safety as a nation may depend upon our achieving space superiority. Several decades from now, the important battles may not be air battles, or sea battles, but space battles. We should be spending a certain fraction of our national resources to ensure that we do not lag in obtaining space supremacy."

The fiscal year 2019 and 2020 budgets represented a significant and critical pivot in U.S. strategy to protect and defend our space capabilities. The fiscal year 2021 space budget represents the Department's commitment to making wise, risk-informed, space superiority investments and advancements. This funding is intended specifically to counter a fast moving threat. Our investments will increase our ability to deter adversaries, and if necessary, to fight and win in space by ensuring we can deliver space capabilities to the Joint and Combined force, defend our nation's most vital space assets, and develop the Joint warfighters we need today and for the future.

I thank the Committee for your leadership and support; together we will build on our legacy of readiness and strength to preserve the peace and ensure American prosperity.

General John W. "Jay" Raymond

Gen. John W. "Jay" Raymond assumed the duties as the first Chief of Space Operations, United States Space Force, Dec. 20, 2019; and Commander, United States Space Command, Aug. 29, 2019.

U.S. Space Force is responsible for providing resilient, defendable and affordable space capabilities for the nation and the joint force. It is the duty of the U.S. Space Force to protect the interests of the United States in space; deter aggression in, from and to space; and conduct prompt and sustained space operations. As the Chief of Space Operations, U.S. Space Force, Gen. Raymond leads the organizing, training, equipping and maintaining of mission-ready space forces and capabilities for U.S. Space Command and other combatant commands around the world. The Chief of Space Operations performs the duties of such position under the authority, direction and control of the Secretary of the Air Force and is directly responsible to the Secretary.

U.S. Space Command is one of 11 unified commands under the Department of Defense and is responsible for deterring conflict, defending U.S. and allied freedom of action in the space area of operations, delivering combat-relevant space capability to the joint/combined force and developing space forces to advance U.S. and allied interests in, through and from the space domain. As the Commander of U.S. Space Command, Gen. Raymond directs assigned and attached joint space forces providing tailored, responsive, theater and global space effects in support of national objectives.

Gen. Raymond was commissioned through the ROTC program at Clemson University in 1984. He has commanded the 5th Space Surveillance Squadron at RAF Feltwell, United Kingdom, the 30th Operations Group at Vandenberg Air Force Base, California, the 21st Space Wing at Peterson AFB, Colorado, the 14th Air Force and Joint Force Space Component Command. He deployed to Southwest Asia as Director of Space Forces in support of operations Enduring Freedom and Iraqi Freedom. Gen. Raymond's staff assignments include Headquarters AFSPC, U.S. Strategic Command, the Air Staff and the Office of the Secretary of Defense.

Prior to assuming command of U.S. Space Force and U.S. Space Command, Gen. Raymond was Commander, AFSPC, Peterson AFB, Colorado.

EDUCATION
1984 Bachelor of Science, Administrative Management, Clemson University, Clemson, S.C.
1990 Squadron Officer School, Maxwell Air Force Base, Ala.
1990 Master of Science, Administrative Management, Central Michigan University, Mount Pleasant
1997 Air Command and Staff College, Maxwell AFB, Ala.
2003 Master of Arts, National Security and Strategic Studies, Naval War College, Newport, R.I.
2007 Joint Forces Staff College, Norfolk, Va.
2011 Combined Force Air Component Commander Course, Maxwell AFB, Ala.
2012 Joint Flag Officer Warfighting Course, Maxwell AFB, Ala.

ASSIGNMENTS
August 1985–October 1989, Minuteman Intercontinental Ballistic Missile Crew Commander; Alternate Command Post; Flight Commander and Instructor Crew Commander; and Missile Procedures Trainer Operator, 321st Strategic Missile Wing, Grand Forks Air Force Base, N.D.
October 1989–August 1993, Operations Center Officer Controller, 1st Strategic Aerospace Division, and Executive Officer, 30th Space Wing, Vandenberg AFB, Calif.
August 1993–February 1996, Chief, Commercial Space Lift Operations, Assistant Chief, Current Operations Branch, Headquarters Air Force Space Command, Peterson AFB, Colo.
February 1996–August 1996, Deputy Director, Commander in Chief's Action Group, Headquarters

AFSPC, Peterson AFB, Colo.
August 1996–June 1997, Student, Air Command and Staff College, Maxwell AFB, Ala.
June 1997–August 1998, Space and Missile Force Programmer, Headquarters U.S. Air Force, the Pentagon, Arlington, Va.
September 1998–April 2000, Chief, Expeditionary Aerospace Force Space and Program Integration, Expeditionary Aerospace Force Implementation Division, Headquarters U.S. Air Force, the Pentagon, Arlington, Va.
April 2000–June 2001, Commander, 5th Space Surveillance Squadron, RAF Feltwell, United Kingdom
June 2001–July 2002, Deputy Commander, 21st Operations Group, Peterson AFB, Colo.
July 2002–June 2003, Student, Naval War College, Newport, R.I.
June 2003–June 2005, Transformation Strategist, Office of Force Transformation, Office of the Secretary of Defense, the Pentagon, Arlington, Va.
June 2005–June 2007, Commander, 30th Operations Group, Vandenberg AFB, Calif. (September 2006–January 2007, Director of Space Forces, Combined Air Operations Center, Southwest Asia)
June 2007–August 2009, Commander, 21st Space Wing, Peterson AFB, Colo.
August 2009–December 2010, Director of Plans, Programs and Analyses, Headquarters AFSPC, Peterson AFB, Colo.
December 2010–July 2012, Vice Commander, Fifth Air Force, and Deputy Commander, 13th Air Force, Yokota Air Base, Japan
July 2012–January 2014, Director of Plans and Policy (J5), U.S. Strategic Command, Offutt AFB, Neb.
January 2014–August 2015, Commander, Fourteenth Air Force (Air Forces Strategic), AFSPC, and Commander, Joint Functional Component Command for Space, U.S. Strategic Command, Vandenberg AFB, Calif.
August 2015–October 2016, Deputy Chief of Staff, Operations, Headquarters U.S. Air Force, the Pentagon, Arlington, Va.
October 2016–December 2019, Commander, AFSPC, Peterson AFB, Colo.
August 2019–present, Commander, U.S. Space Command, Peterson AFB, Colo.
December 2019–present, Chief of Space Operations, U.S. Space Force, Peterson AFB, Colo.

SUMMARY OF JOINT ASSIGNMENTS
June 2003–June 2005, Transformation Strategist, Office of Force Transformation, Office of the Secretary of Defense, Arlington, Va., as a colonel
July 2012–January 2014, Director of Plans and Policy (J5), U.S. Strategic Command, Offutt Air Force Base, Neb., as a major general
December 2017–August 2019, Commander, Joint Force Space Component Command, Peterson AFB, Colo., as a general
August 2019–present, Commander, U.S. Space Command, Peterson AFB, Colo., as a general

MAJOR AWARDS AND DECORATIONS
Distinguished Service Medal with oak leaf cluster
Defense Superior Service Medal with oak leaf cluster
Legion of Merit with oak leaf cluster
Meritorious Service Medal with four oak leaf clusters
Air Force Commendation Medal
French Order of Merit

OTHER ACHIEVEMENTS
2007 General Jerome F. O'Malley Distinguished Space Leadership Award, Air Force Association
2015 Thomas D. White Space Award, Air Force Association
2016 Peter B. Teets Government Award, National Defense Industrial Association
2017 James V. Hartinger Award, National Defense Industrial Association

EFFECTIVE DATES OF PROMOTION
Lieutenant July 20, 1984
First Lieutenant July 20, 1986
Captain July 20, 1988

Major July 1, 1996
Lieutenant Colonel July 1, 1999
Colonel July 1, 2004
Brigadier General Aug. 1, 2009
Major General May 4, 2012
Lieutenant General Jan. 31, 2014
General Oct. 25, 2016

(Current as of December 2019)

STATEMENT OF
CHARLES A. RICHARD
COMMANDER
UNITED STATES STRATEGIC COMMAND
BEFORE THE
HOUSE ARMED SERVICES SUBCOMMITTEE ON STRATEGIC FORCES
27 FEBRUARY 2020

INTRODUCTION

USSTRATCOM is a global warfighting command, and I am privileged to lead the 150,000 Sailors, Soldiers, Airmen, Marines, and Civilians who dedicate themselves to the Department of Defense's highest priority mission. I thank the President, Secretary of Defense, and Chairman of the Joint Chiefs for their confidence in me to lead this Command and the Department's nuclear enterprise. I also thank Congress for their continued support, which ensures USSTRATCOM has the required resources necessary to continue providing our Nation's strategic deterrence.

Commander, USSTRATCOM, as a key enabler and contributor to Joint Force operations, is the combatant commander responsible for Strategic Deterrence; Nuclear Operations; Global Strike; Joint Electromagnetic Spectrum Operations; Missile Defense; Analysis and Targeting; and Missile Threat Assessment. To execute our assigned responsibilities, the men and women of this Command operate globally across all domains, to include the information environment. We work closely with the Joint Force across organizations, and with our Allies and partners to address the strategic challenges facing our Nation. Our mission: To deter strategic attack and employ forces, as directed, to guarantee the security of our Nation, our Allies, and our partners.

The Command's priorities are: 1) above all else, we will provide strategic deterrence for the Nation and assurance of the same to our Allies and partners; 2) if deterrence fails, we are prepared to deliver a decisive response, decisive in every possible way; and 3) we will do this with a resilient, equipped, and trained combat-ready force. A powerful, ready triad; a survivable nuclear command, control, and communications (NC3) system; and a responsive nuclear weapons infrastructure are the foundation that enables strategic deterrence and assurance which is fundamental to our survival as a Nation, and deters adversaries from conducting nuclear and non-nuclear strategic attacks against our Nation, our Allies, and our partners.

The dedicated professionals working for and with USSTRATCOM allow the Command to execute its operations and provide the Nation with its strategic deterrent against threats in all domains. Without the men and women of USSTRATCOM, actively performing the deterrence mission every day, we could not deter potential adversaries and guarantee the freedoms our Nation holds dear.

To be clear, nuclear deterrence is the highest priority mission of the Department of Defense – our deterrent underwrites every U.S. military operation around the world and is the foundation and backstop of our national defense.

The ability of the United States to deter threats to our Nation and our Allies is at a critical point. The contemporary security environment is the most challenging since the Cold War. In the nuclear dimension, we face a range of potential adversaries, each with different interests, objectives, and capabilities. To maintain a credible deterrent in this environment requires us to modernize and

recapitalize our strategic forces to ensure our Nation has the capability to deter any actor, at any level. Doing so requires we remain committed to modernizing and recapitalizing our strategic forces and supporting infrastructure, and that we continue to pursue the supplemental nuclear capabilities intended to address new challenges in the security environment.

A visible symbol of our commitment to nuclear modernization is the recently completed General Curtis LeMay Command and Control Facility (C2F) at USSTRATCOM. The C2F is one of the most advanced weapon systems ever constructed, and will be a critical element for the integration of global intelligence, nuclear planning, and operations with other combatant commands in coordination with our national leadership. Its modern infrastructure for Command and Control of strategic forces provides the flexibility for effective oversight and clear direction in a new era of global, integrated operations.

We must proceed with modernization. Sustainment and modernization of our nuclear forces has transitioned from something that we should do to something that we must do. Continuing to maintain the Nation's strategic deterrent needed to meet the challenges of the global security environment and to realize Presidential and Departmental guidance defined by the National Defense Strategy (NDS), National Military Strategy (NMS), and Nuclear Posture Review (NPR) requires continued Congressional support, budget stability, and on-time appropriations.

GLOBAL SECURITY ENVIRONMENT

The NDS's prioritization of great power competition is the impetus for increasing lethality, strengthening alliances and partnerships, and reforming the Department in an increasingly complex global environment. It addresses the changing nature of threats to the United States. Competitors, such as China and Russia, are developing advanced capabilities to directly challenge our strengths across all domains. USSTRATCOM is committed to fulfilling our NDS requirements and searching out innovative ways to understand the environment and adapt to the challenges presented in the global security environment.

We understand competition does not equal conflict, and war does not have to be an inevitable conclusion in an era of great power competition. However, we must be responsive to the increasing desire for state and non-state actors to reshape the world in their favor, doing so at the expense to the security of our Nation, our Allies, and our partners, and accepted international norms and rules. We must be capable of recognizing and communicating the potential for adversarial actors who use forces in any domain to coerce, undermine, or erode the current rules-based order.

CHINA

China is advancing a comprehensive modernization program for the People's Liberation Army (PLA) and is building a robust, lethal force with capabilities spanning all domains, the electromagnetic

spectrum, and the information environment. These initiatives increase China's ability to project power further from their mainland and support their aspirations to impose China's will throughout the Indo-Pacific region. Beijing's military modernization supports longstanding goals to establish regional hegemony, deny U.S. power projection operations in the Indo-Pacific, and supplant the U.S. as the security partner of choice.

China continues to expand and increase its strategic force capabilities. Despite maintaining a "No First Use" policy, China's lack of transparency regarding its modernization efforts to increase regional capabilities and to expand its overall arsenal bring its motives and intent into question. Among questions about Chinese intentions is their drive to likely double the size of their nuclear stockpile by the end of the decade. The PLA's range of new systems that complement its growing nuclear stockpile includes developing a survivable nuclear triad, counter-intervention, and power projection capabilities to deter and deny foreign regional force projection in the Indo-Pacific. The PLA's Air Force (PLAAF) newly reassigned nuclear mission, and a deployment of a strategic bomber would provide China with its first credible nuclear triad. During the 70th Anniversary Parade in October 2019, the PLA unveiled new strategic nuclear systems, including the H-6N BADGER bomber, DF-41 intercontinental ballistic missile (ICBM), DF-17 medium-range ballistic missile, and improved submarine-launched ballistic missiles (SLBM). Other advanced systems include a range of ballistic missile defense technologies and increased anti-access/area denial operations. Finally, the PLA is developing a space-based early warning capability and more sophisticated command and control (C2) systems to safeguard the integrity of a larger, more dispersed force. Collectively, Chinese improvements to its nuclear capabilities raise troubling concerns and underscore the need to press on with modernizing our nuclear forces, including the supplemental capabilities outlined in the NPR.

Our Nation, and our Allies and partners, should not accept Chinese policies or actions that threaten the international rules-based order or undermine regional and global stability. We must remain postured to counter Chinese coercion and subversion, assure our regional Allies and partners, and protect our national security interests as international law allows.

RUSSIA

Russia seeks to regain its role as a world power and erode U.S. leadership in world affairs. Russia continues to pursue a sphere of influence over the states on its periphery and attempts to dictate the parameters of those states' sovereignty, especially regarding matters of security or economics. Russian military doctrine emphasizes the potential coercive and military uses of nuclear weapons and Russia fields advanced capabilities to achieve these objectives. Moreover, Russian doctrine and rhetoric

highlights a willingness to use nuclear weapons first, perhaps in an attempt to terminate a conventional conflict on terms acceptable to Russia.

Russia's aggressive and robust military and nuclear modernization campaign across its strategic triad and dual-use systems is close to completion. To date, Russia has recapitalized 76 percent of its strategic nuclear forces with modern weapons and equipment, strengthening its overall combat potential. It is easier to list the nuclear weapons and equipment Russia has not modernized, than it is to describe their all new equipment and capabilities. Upgrades to existing strategic forces include updating the Tu-95MS BEAR strategic bomber and Kh-101/102 long-range, air-launched cruise missiles; building and deploying the DOLGORUKIY-class SSBN platform for the BULAVA SS-N-32 SLBM; replacing silo-based and mobile ICBMs with newer systems and increased warhead upload capacity; and fielding the Avangard Hypersonic Glide Vehicle. In addition to modernization efforts, Russia is embracing new and novel technologies such as the TSIRKON hypersonic anti-ship missile, Belgorod submarine, nuclear capable Poseidon unmanned underwater vehicle, Kalibr land-attack cruise missile, Kinzhal air-launched ballistic missile, and Skyfall nuclear powered intercontinental cruise missile. These advanced dual-capable systems are specifically designed to challenge U.S. and Allied deterrent structures and target our capabilities.

Over the past decade, Moscow has not only emphasized strategic forces preparedness, but also endeavored to enhance Russia's civil defense readiness for strategic conflict, and has conducted exercises geared towards increasing interoperability between civil and military organizations in a time of war. Additionally, both Russia and China appear to be expanding their strategic partnership in the Asia/Pacific Region. Last summer, this partnership went on display through a combined out-of-area (OOA) flight. Their joint efforts continue to erode transparency and predictability, use force to achieve their goals, undermine rules-based international order, and violate the sovereignty and territorial integrity of their neighbors.

Russia's nuclear forces include a range of strategic weapons, some not captured by existing arms control structures, and theater and tactical nuclear weapons entirely outside the arms control framework. Due to Russia's refusal to submit these theater (or non-strategic) systems to arms control limits or transparency initiatives, a considerable level of uncertainty clouds judgements on the scope and disposition of Russia's stockpile. However, Russia's overall nuclear stockpile is likely to grow significantly over the next decade – growth driven primarily by a projected increase in Russia's non-strategic nuclear weapons. Russia's determined pursuit of "non-strategic" nuclear weapons, together with their recent theory of nuclear rhetoric, indicates a troubling readiness to resort to nuclear weapons early in a crisis. Accordingly, our nuclear forces must include a sufficient range of capabilities such that

Russia never mistakenly perceives any advantage from using nuclear weapons, at any threshold of violence.

NORTH KOREA AND IRAN

North Korea continues to defy international norms and conducts malign activities to foster regional instability. North Korea has tested ICBM-class missiles designed to reach the United States and has increased the number of short and medium-range ballistic missiles in its inventory. USSTRATCOM is committed to supporting the Department's efforts to work with like-minded regional partners to reduce military tensions and support our diplomats in achieving the final, fully verified denuclearization of North Korea.

Iran remains the world's leading sponsor of terror. By arming and utilizing proxy forces with advanced conventional weapons, Iran threatens our Nation and our partners in the region. Iran relies on its missile forces as a tool for signaling, propaganda, and retaliation, as observed through violation of the 2015 Joint Comprehensive Plan of Action (JCPOA), and further illustrated by last month's ballistic missile launches against airbases in Iraq. Additionally, Iran continues to retain the technological capability and capacity to develop a nuclear weapon within one year of a decision to do so. Iran continues to ready and develop long-range ballistic missile capabilities, coupled with an aggressive strategy to destabilize the Middle East; calling into question Iran's commitment to foregoing nuclear weapons. Iran's actions introduce greater risk to an already volatile environment and threatens global commerce, security, and stability.

We remain vigilant to the threats both North Korea and Iran pose to the United States, our Allies and partners, and support on-going international and whole-of-government approaches to reduce these threats.

INTEGRATED STRATEGIC DETERRENCE

The 21st century global security environment presents challenges to deterrence. Competitors are conducting subversive actions below the levels of traditional conflict across all domains. Additionally, our adversaries are integrating nuclear, conventional, space, electromagnetic spectrum, and cyber capabilities to form an unprecedented range of threats; this includes the exploitation of the potential threat of nuclear employment to shape our response to their actions.

In a new era of warfighting, traditional Cold War deterrence concepts may be insufficient to deter the full range of threats in the modern security environment. The United States must apply tailored deterrent strategies to specific adversaries, while integrating the full spectrum of our military capabilities, both nuclear and conventional, with all elements of U.S. national power. An integrated strategic

deterrence concept must leverage and exploit information advantage to seek long-term gains and capabilities in response to advancing threats; and fully assess the risks associated with deterrence failure.

To address 21st century challenges, integration cannot stop within our government. Building and maintaining our relationships are critical to preserving shared interests and responding to mutual threats. The Command continues to engage with Allies and partners to strengthen relationships, build trust, and set conditions across the globe.

USSTRATCOM supported seventeen senior-level international engagements in 2019, including visits to the United Kingdom, Denmark, and Canada as well as visits from the United Kingdom, Denmark, Japan, Australia, the Republic of Korea, and 32 Defense Attachés through the International Visitor Leadership Program (IVLP). Our daily interactions with our Allies and partners coupled with Bomber Task Force (BTF) deployments, submarine port-calls and visits, and cooperative missile defense activities provide unique opportunities to strengthen relationships, build trust between our senior leaders, and increase the interoperability of our forces. The Command also hosted an annual Deterrence Symposium to exchange viewpoints on security challenges; senior political, military, and academic leaders from over 13 nations attended this event.

To facilitate these interactions, Headquarters USSTRATCOM hosts permanently assigned liaison officers from Australia, Canada, Denmark, the Republic of Korea, and the United Kingdom; and our Joint Functional Component Command for Integrated Missile Defense hosts a liaison officer from Germany. These Foreign Liaison Officers serve as a conduit between the Command and their nations' militaries. To the extent possible, liaison officers and their superiors participate in our Tier 1 globally integrated exercises, offering mutual benefits to our Allies and the United States. These peacetime engagements develop relationships before a crisis. This past year's successes have included funding secure communication infrastructure compatibility, defining operational relationships, enhancing our military interoperability, improving combined capabilities across our Allies and partners, and integrating critical defense missions to assure Allies and partners of our Nation's extended deterrence commitments and non-proliferation objectives.

GLOBALLY INTEGRATED OPERATIONS

Globally integrated operations remain essential to achieving defense objectives in this era of great power competition. The worldwide dispersal of friendly and adversarial forces create both opportunities and challenges. As a Joint Force, we must continue to work with our Allies and partners across geographic and warfighting boundaries to create security advantages. Additionally, the Joint Force must increase proficiency in employing global capabilities - space, cyber, and special operations forces - hand-in-hand with traditional air, land, and sea warfighting capabilities. The essence of globally

integrated operations is the alignment of the Joint Force in purpose, time, and tempo regardless of which commander is responsible for execution; this is particularly important for execution of the strategic deterrence mission where the operations and activities of combatant commanders significantly affect deterrence success. Investments in cross-combatant command coordination are vital. There is also a temporal aspect to global integration; the ability of operational commanders to gain warfighting advantages depends on enacting decisions faster than our adversaries. In the last year, the Joint Force has made enormous strides in implementing the Secretary's vision for global integration, but we must continue on the path to defend the Nation's interests in the 21st century.

NUCLEAR OPERATIONS

USSTRATCOM bears the responsibility for operating our Nation's nuclear triad. The Nation's nuclear triad is safe, secure, and effective; and is foundational to our survival. It remains the greatest contributor to deterring adversaries from conducting nuclear and non-nuclear strategic attacks against our Nation, and our Allies and partners. However, the Nation is at a critical juncture regarding the future of our nuclear forces. Since the end of the Cold War, we led the world in reducing our nuclear stockpile while increasing transparency. While we reduced the number and types of nuclear weapons in our arsenal, our adversaries went in the other direction and continued to modernize and expand their strategic capabilities. We now find ourselves fielding a reduced Cold War era arsenal against a larger, more modern, and more varied Russian force and a continually improving and growing Chinese force. If we do not address 2018 NPR recommendations, this will create the potential for insufficient flexibility in the triad to impose costs and deter all potential conventional and nuclear threats in the early-2030s.

For the last three decades, we have anticipated reaching a tipping point in the nuclear weapons complex. That point is almost here. Our weapons, NC3, and triad delivery systems will soon reach retirement or require refurbishment. If we do not invest smartly and consistently in our nuclear enterprise now, we will need to rebuild from scratch the talent and infrastructure required to design the deterrent forces for our Nation's future needs. As the foundation for deterrence for our Nation, Allies, and partners, we must continue to sustain, modernize, and recapitalize our Nation's strategic nuclear capabilities. Previous de-emphasis on our nuclear deterrent and the infrastructure that supports it, coupled with a changing security environment, coupled with adversaries that are modernizing and creating increasingly capable forces, has led us to the point where we must modernize now to continue to maintain a viable deterrent in the future. We appreciate that Congress has recognized the importance of modernizing U.S. nuclear forces after decades of deferred recapitalization and has funded these programs. We request your continued support to modernize and sustain our Nation's nuclear deterrent.

LAND-BASED STRATEGIC DETERRENT

USSTRATCOM's geographically dispersed ICBM force is the most responsive leg of the triad, continuing to deliver a highly reliable, secure deterrent capability and an overwhelming challenge to defeat. While the Minuteman has served as the backbone of our Nation's ICBM force since 1962, its aging infrastructure, and asset attrition require a comprehensive weapon system replacement beginning in 2028. The Air Force remains focused on sustaining our ICBM force at the lowest reasonable cost. The Ground Based Strategic Deterrent (GBSD) Analysis of Alternatives provided decisive analysis that continued life extension of the Minuteman III (MM III) would be more costly than a replacement system and would not address future challenges and threats to our current ICBM force. GBSD is the lowest risk, highest value decision to meet current and future military requirements.

USSTRATCOM supports the ongoing MM III sustainment programs needed to keep the weapon system viable and effective until GBSD reaches full operational capability in 2036. Smart, consistent sustainment of our current missile systems, while we modernize the ICBM force, will ensure an effective deterrent remains for many decades. GBSD is a just-in-time replacement program, and we cannot afford to have the MM III weapon system deteriorate prematurely.

The GBSD program completes the Technology Maturation and Risk Reduction (TMRR) phase in FY2020 and transitions to Engineering and Manufacturing Development (EMD) following a successful Milestone B decision this year. USSTRATCOM remains firmly committed to GBSD as the Air Force pursues mature, low-risk technologies, modularity, and open system standards to enable affordable technology insertion. On-time GBSD deployment remains a USSTRATCOM imperative; we must keep requirements stable and protect existing schedule margin or where possible, expand these schedule margins.

GBSD, when fielded, will be an affordable, modern weapon system, deployed in updated infrastructure and fully integrated into a modernized NC3 system. Our ICBMs, and prospectively the GBSD, raise the threshold of an adversary's attack on the homeland by presenting an intractable targeting problem. Eliminating our ICBM capability, and specifically the GBSD, would be dangerously provocative, present a less credible strategic threat, and grant adversaries a vastly reduced target set – raising the risk to our Nation of a disabling first strike. Thus, USSTRATCOM strongly supports the Air Force in providing GBSD to ensure our deterrent remains effective and lethal in an ever-changing and increasingly threatening strategic environment.

AIR-BASED STRATEGIC DETERRENT

The bomber leg of the nuclear triad is the most flexible and visible aspect of our Nation's nuclear forces. Through their discernable adaptability, bombers continue to provide a wide variety of deterrence

options to the President and unambiguously signal unwavering resolve to our adversaries. Additionally, their persistence and reliability of our bomber force reassures our Allies and partners. Nevertheless, current bombers and associated weapon systems are beyond or quickly approaching their intended end of service life and require sustainment to remain operational and modernization to address evolving and emerging threats.

The B-52 remains the backbone of the bomber force and will remain in service for an additional 30 years. It serves as an important hedge against delays in our future bomber programs and is a key component of the Nation's triad. To remain effective, the B-52 must receive several critical upgrades. First, the B-52's Commercial Engine Replacement Program will replace the existing TF-33 engines (1960s era) that are becoming increasingly unsupportable, and will also yield increased fuel efficiency resulting in greater range, longer flight times, and reduced tanker requirements. In addition to new engines, modernization plans are underway to upgrade the B-52's radar, avionics, and NC3 systems, which must remain on schedule to meet the operational requirements of our airborne deterrent requirement.

The B-2 is the only long-range, penetrating stealth bomber in the world. It is imperative we maintain the B-2's unique deterrent and combat capability, until replaced by the B-21. Decisions on the future bomber force structure and key enablers must be based upon strategic imperatives and combat effectiveness, ensuring no capability gaps for critical tasking across the family of operational plans (nuclear and conventional).

The future of the bomber force is the B-21 Raider. Designed to meet NDS objectives and based on firm requirements leveraging existing and mature technology, the B-21 will deliver unrivaled combat capability. It is an Air Force "Top 3" acquisition program with a planned procurement of at least 100 aircraft and is currently executing in the EMD acquisition phase. The B-21 will utilize both direct attack and standoff weapons, providing a multitude of options to the warfighter to meet national objectives. It is critical the Air Force delivers the B-21 on time and on budget to meet the Nation's deterrence objectives and global security requirements.

In addition to the bombers, the air delivered weapon stockpile modernization is also occurring through just-in-time Life Extension Programs (LEPs). Notably, the Long Range Standoff (LRSO) weapon coupled with the W80-4 warhead will replace the Air Launched Cruise Missile (ALCM) and its W80-1 warhead as that system faces reliability and sustainability challenges. Likewise, the B61-12 will replace aging B61 nuclear gravity bombs deployed on strategic long-range bombers and on our Nation's and Allies' Dual Capable Aircraft (DCA). The B61-12 life extension includes a guided tail kit assembly to improve weapon accuracy, enabling a more accurate, single gravity nuclear weapon capability that will enhance our Nation's nuclear deterrent and the extended deterrence provided to our Allies and partners.

The success of all bomber missions depends on adequate tanker support to achieve the necessary global reach to hold strategic targets at risk. The KC-46, currently in the Initial Operational Testing and Evaluation (IOT&E) acquisition phase, will partially replace the aging KC-135 fleet. Air Force leadership continues to engage with Boeing to ensure the new tanker will meet operational objectives.

SEA-BASED STRATEGIC DETERRENT

The OHIO-class SSBN with the highly capable Trident II D5 ballistic missile constitutes the most survivable leg of our nuclear triad and provides a reliable deterrent to our adversaries around the world. The SSBN's ability to operate continuously and clandestinely sends a very clear message that our adversaries cannot benefit from a strategic attack against the U.S. or our Allies.

The OHIO-class SSBN is a marvel of technology and its robust design, along with a comprehensive maintenance program, has allowed it to be life extended from 30 to 42 years – longer than any previous submarine class in U.S. history. The Navy has never kept a single submarine in service longer than 37-years, let alone an entire class. There is no margin to extend the OHIO-class further; therefore, the COLUMBIA-class SSBN must field on time to avoid a capability gap in the triad. It is essential we maintain our technological advantage in this critical mission, and to this end, the Navy has designated COLUMBIA as the top shipbuilding priority in order to ensure its first strategic deterrent patrol in FY2031. As production begins, we must support our industrial partners' expansion of both infrastructure and training programs to minimize risk.

Furthermore, to remain survivable, we must address anticipated security threats that could undermine our own future capabilities. Advancements in Russian submarine stealth and detection requires us to remain committed to the recapitalization of our Integrated Undersea Surveillance System (IUSS) to preserve our advantage in the undersea domain.

Following the decision to extend the OHIO-class SSBN, the Navy determined the need to life-extend the Trident II D5 ballistic missile, both to address obsolescence issues and to ensure the required quantity of deployable ballistic missiles into the early 2040s. The life extension program, known as D5LE, will ultimately serve as the transition missile from OHIO to COLUMBIA. Additionally, efforts are underway to further extend the D5 missile through the life of the COLUMBIA with the D5LE2 program. D5LE2 will recapitalize the D5, using highly reliable components still in production, pull forward previously unused system margin, and provide a more cost effective design with sufficient flexibility to account for evolving threats. In order to realize these capabilities, we must revive an atrophied industrial base required to produce critical non-nuclear components employed on the D5LE2.

To enhance the flexibility and responsiveness of our nuclear forces as directed in the 2018 NPR, we will pursue two supplemental capabilities to existing U.S. nuclear forces: a low-yield SLBM warhead

(W76-2) capability and a modern nuclear sea launched cruise missile (SLCM-N) to address regional deterrence challenges that have resulted from increasing Russian and Chinese nuclear capabilities. These supplemental capabilities are necessary to correct any misperception an adversary can escalate their way to victory, and ensure our ability to provide a strategic deterrent. Russia's increased reliance on non-treaty accountable strategic and theater nuclear weapons and evolving doctrine of limited first-use in a regional conflict, give evidence of the increased possibility of Russia's employment of nuclear weapons. We must counter these dangerous perceptions with the supplemental capabilities the LYBM and SLCM-N will provide. An analysis of alternatives is under way for SLCM-N.

NUCLEAR WEAPONS AND SUPPORTING INFRASTRUCTURE

Today's nuclear stockpile meets current operational and policy requirements. While the stockpile and its supporting infrastructure are safe, secure, reliable, and effective, both remain fragile. Many of our weapons have remained in service well beyond their original design lives, owing to the robustness of original designs and the Department of Energy/National Nuclear Security Administration's (DOE/NNSA) continuing stockpile stewardship efforts. However, the accumulation of concurrent risks and capacity margins limit the ability to mitigate adverse impacts to the deterrent. Insufficient resourcing over the past 30+ years postponed much-needed weapon and infrastructure modernization programs, which typically require 10-15 years to execute. Directive policy changes affecting priorities and inefficient program execution across administrations have directly contributed to the related erosion in the critical capabilities and capacity of our strategic deterrent forces. As a result, many of the modernization and sustainment efforts necessary to ensure the deterrent's viability have zero schedule margin and are late-to-need.

I firmly support the Secretary's and Chairman's public statements identifying nuclear deterrence as the highest priority mission of the Department of Defense. Our nuclear deterrent underwrites every U.S. military operation around the world and is the foundation and backstop of our national defense. I cannot overemphasize the need to modernize our nuclear forces and recapitalize the supporting infrastructure to ensure we can maintain this deterrent in the future. I am concerned that the oft-repeated message of the need to modernize and recapitalize has lost its impact, and that collectively we have underestimated the risks associated with such a complex and time-constrained modernization and recapitalization effort. Even seemingly small issues can have a disproportionate impact on the force. We cannot afford more delays and uncertainty in delivering capabilities, and must maintain a focus on revitalizing our nuclear forces and the associated infrastructure.

The 2018 NPR described a hedging strategy to meet future risks and unexpected challenges. The atrophy in our nuclear weapons supporting infrastructure is consuming our hedge for avoidable programmatic risk. We no longer have hedge capacity to fully account for geopolitical risk, technological

risk, or operational risk. Continued modernization and sustainment work deferral will only further exacerbate an already untenable situation as we repeatedly extend weapon lifetimes and do not invest in the diagnostic capabilities needed to ensure confidence in the viability of these systems.

To maintain military effectiveness in the future, we must execute the program of record (POR) immediately, and invest in advanced diagnostic, research, and development activities to mature emerging technologies to certify and field a modern deterrent for the 21st century. The next generation of deterrent forces must encompass responsive weapon systems, world-class personnel, resilient infrastructure, and intelligence informed decisions. We must address emerging 21st century threats that may reduce the effectiveness of our nuclear deterrent force.

The NNSA took efforts in 2019 to address a gap identified in the 2018 NPR by converting a small number of W76-1s into the W76-2 low-yield variant. W76-2 deliveries to the Navy and remaining production are continuing as scheduled in FY2020. In 2019, our weapon modernization programs saw a setback when reliability issues emerged with commercial off-the-shelf non-nuclear components intended for the W88 Alteration 370 program and the B61-12 LEP. NNSA has worked closely with DoD to mitigate impacts, but correcting these issues will delay initial fielding of both systems. Finally, another just-in-time program is the W80-4 LEP, which remains in synchronized development with the LRSO delivery system. It is critical for this standoff attack capability program to remain on track.

While air-delivered weapon modernization is proceeding in the B61-12 and W80-4, we must begin efforts now to modernize ballistic missile warheads for our ICBM and SLBM force in the 2030s and 2040s. After the 2018 NPR, re-evaluation of our stockpile strategy shifted to pursue separate NEP designs for the Air Force and Navy. However, the ballistic missile end-state remains the same: address known and projected aging and performance concerns; preserve triad attributes; balance warhead types across the force; and improve inter- and intra-leg hedge capability. The Air Force is developing the MK21A/W87-1 to replace the W78 ICBM warhead that will be over 50 years old when finally retired. When deployed, the W87-1 will provide enhanced safety and security compared to all other ballistic missile warheads.

The Nuclear Weapons Council has established a requirement for the W93/Mk7 warhead. This warhead will provide USSTRATCOM and the Navy a means to address evolving ballistic missile warhead modernization requirements, improve operational effectiveness, and mitigate technical, operational, and programmatic risk in the sea-leg of the triad. This effort will also support a parallel Replacement Warhead Program in the United Kingdom whose nuclear deterrent plays an absolutely vital role in NATO's overall defense posture. Without a coordinated, joint effort to develop and field the W93/MK7 as a system, the bulk of our day-to-day deterrent force will be at increased risk in the early 2040s due to aging legacy systems. Given the potential severity of impacts on overall deterrence from

late delivery of the W93/MK7, it is imperative the complex work to identify opportunities to accelerate the development timeline and invest in technologies to reduce schedule risk. Research and development efforts for critical national capabilities, such as fuzes and aero shells, must begin immediately to deliver a capability in the 2030s that maintains a credible at-sea deterrent through the 2050s and beyond.

Our present Nuclear Security Enterprise (NSE) infrastructure, which we count on to sustain our strategic deterrent, continues to atrophy and requires timely recapitalization. NNSA planned facility improvements to critical capabilities will not materialize in the near-term, yet facility age and capacities currently limit our ability to timely respond to unforeseen technical, geopolitical, programmatic, or operational developments. The non-nuclear component issue affecting the B61-12 LEP and W88 Alteration 370 program is a symptom of a fragile enterprise – a single component failure caused a disruption across multiple programs for a period of years. USSTRATCOM is able to mitigate the operational impacts today, but proposed steps to reduce accumulating further operational impacts provide a partial capability at best. The Nuclear Weapons Council Strategic Plan, NNSA Stockpile Stewardship and Management Plan, and 2020 Requirements and Planning Document describe a path forward to enable an effective, responsive, and resilient NSE, but successful navigation of the path will only be possible through continued on-time investments.

USSTRATCOM supports NNSA's highest infrastructure priority to reconstitute plutonium pit production. Since the closure of the Rocky Flats facility 30 years ago, no significant quantities of new pits have been added to the stockpile. The Nation must be able to produce no fewer than 30 pits per year in 2026 and produce at least 80 pits per year during 2030 to maintain stockpile effectiveness. This capacity is the minimum required to execute the POR; anything less will force difficult decisions on which modernization programs to defer, which could result in a less-capable nuclear deterrent, and accept unprecedented pit ages. The NNSA's two-site plan to achieve plutonium pit production at Los Alamos National Lab and the Savannah River Site is prudent and necessary to achieve pit production requirements rather than accept pit lifetimes that threaten the confidence in our weapons' capabilities. Failure to accomplish these goals will place all future stockpile modernization programs at risk.

In addition to plutonium pit production, the NSE must continue to recapitalize capabilities to process uranium and lithium, produce tritium, manufacture and procure trusted radiation-hardened microelectronics, and manufacture non-nuclear components in sufficient quantities to sustain and modernize the force. Production of nuclear weapon components and the materials needed to construct them effectively stopped during the 1990s when we began to life-extend legacy systems. This includes recruiting and developing the specialized workforce and experts required to produce and maintain these systems. Maintaining a safe, secure, reliable, and effective strategic deterrent into the future requires restoring or increasing the capacity of these material, component, and workforce capabilities.

Congressional legislation has recognized and supported the need for an effective, responsive, and resilient NSE by directing the NNSA to continually exercise all capabilities required to conceptualize, develop, engineer, certify, and deploy nuclear weapons. The Stockpile Responsiveness Program (SRP), combined with the POR and its supporting science program, enables a process to exercise the development of nuclear weapons. I remain supportive of the program, especially activities like the rapid design-to-test experiment, which cuts time from clean-sheet design to hydrodynamic test by two-thirds.

Maintaining a safe, secure, reliable, and effective stockpile that continues to meet its intended deterrence and assurance roles into the future will require consistent, predictable funding for weapons modernization and the supporting infrastructure over the next two decades. Failure to make this investment presents an existential risk to the Nation. Success hinges on continued coordination between DoD and NNSA as well as the consistent cooperation among all stakeholders.

NUCLEAR WEAPONS SAFETY AND SECURITY

Our nuclear security standard is complete denial of unauthorized access to nuclear weapons. We have worked closely with our Navy and Air Force partners to assess nuclear security requirements and adjust our force posture, training, and equipment to address current and evolving threats. While we continue to advance our security capabilities, there are areas where additional investments are necessary to maintain the high standards this mission demands.

The proliferation, ease of use, and sophisticated capabilities of small, unmanned aircraft systems (sUAS) pose a threat to our operations. The Department continues to field counter sUAS capabilities and are refining tactics, techniques, and procedures to address the developing threat. Focused leadership, vigilance, and dedicated investment are necessary to remain ahead of this challenge.

With intense advocacy from our Command and strong support from Congress, we achieved a significant ICBM security milestone with the Air Force awarding a contract to replace our Vietnam-era UH-1N helicopter fleet with the new MH-139 "Grey Wolf." The Air Force expects delivery of the first two aircraft to Eglin AFB in 2020 for developmental testing. Delivery of subsequent aircraft to each missile wing will provide full operational capability by FY2027. With this program moving forward, we can now focus our efforts on replacing aging armored security vehicles with Joint Light Tactical Vehicles, equipped with advanced weapons and communications systems that will provide security personnel uninterrupted situational awareness anywhere they operate.

Finally, we encourage Congress to continue supporting our ICBM Transportation and Handling equipment. The Payload Transporter Replacement and Transporter Erector Replacement Programs will provide safe, secure MM III solid rocket motor (SRM) transport, removal, and emplacement, and over the coming years, these heavily tasked force enablers will facilitate the transition from MM III to GBSD. We

continue to support fully funding the weapons security programs for on-time delivery, enhancing the security of our strategic weapons and our vast ICBM complex.

NUCLEAR COMMAND, CONTROL, & COMMUNICATIONS ENTERPRISE

Our layered approach to providing NC3 capabilities remains reliable and effective in our current strategic environment; however, we have identified challenges in the near-term to address maintaining deterrence in the coming decades. Our posture and capabilities were adequate for the Cold War needs, especially against the Soviet-era ballistic missile and bomber threats. Now, we face improved adversarial capabilities in air- and sea-launched cruise missiles and evolving space and cyber threats. We must look beyond traditional ballistic missile profiles and understand the full spectrum of threats to NC3. We must innovate and outpace those threats to maintain our deterrent capabilities. Our continued focus is to maintain positive command and control of U.S. nuclear forces at all times, before, during, and after a nuclear attack. As we modernize our triad, we must maintain current capabilities while we address future NC3 requirements. This is one of my top priorities.

In October 2018, the Secretary of Defense designated the Commander, USSTRATCOM, as the NC3 Enterprise Lead responsible for NC3 enterprise operations, requirements, and systems engineering and integration. Last year, USSTRATCOM established the NC3 Enterprise Center (NEC) and started building relationships with the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)) as the NC3 Capability Portfolio Manager (CPM). In the effort to consolidate authorities and responsibilities for the NC3 portfolio, we jointly presented the status of the NC3 Enterprise to the Deputy Secretary of Defense and the Chairman of the Joint Chiefs of Staff; this will reoccur on a continual basis as directed by the Secretary of Defense.

USD(A&S) and the Commander, USSTRATCOM, coordinated and recommended adjustments for our most pressing NC3 shortfalls. We support fully funding our approach to quantitatively assessing the NC3 enterprise. While an understandably complex and ambitious undertaking, we want to be able to model and monitor the entire enterprise. Data science is quickly proving its value to industry and we need to leverage this capability and implement it into our approach to assess the NC3 Enterprise's mutually supportive, interdependent architecture. Additionally, in order to move forward, we must provide the necessary manpower to build enterprise level capabilities.

Last year we saw success in validating the mission need statement for the next generation NC3 architecture. We are continuing to build out processes and supporting capabilities that will be foundational to establishing an architecture that is mutually supportive and resilient to the entire spectrum of attacks. While we develop the next generation NC3 to conduct nuclear command and control (NC2) over assured communication paths, we must consider how NC2 infrastructure will align and interoperate

with the future Joint All-Domain Command and Control (JADC2) structure. Future NC3 architecture will retain elements specific to NC2 while leveraging JADC2 to maintain resilient and redundant C2 and facilitate quick decision cycles.

In order to provide continuous communications and control of nuclear forces between the President, senior advisors, and Joint Forces, we must maintain our Advanced Extremely High Frequency (AEHF) satellites, paired with ground and airborne Family of Advanced Beyond Line of Sight Terminals (FAB-T). We continue to develop the plan for the next generation of airborne command and control aircraft, replacing the legacy E-4B National Airborne Operations Center (NAOC), E-6B Airborne Command Post (ABNCP) and Take Charge and Move-Out (TACAMO), and C-32 Executive Transport fleets. Existing capabilities will need to retain their current roles and may need to accept new ones as our next generation of NC3 takes shape. As we build on our airborne communication capabilities, we are evaluating the relay capabilities of ground forces to augment and enhance the survivability and endurance of our airborne layer. The Air Force's Global Aircrew Strategic Network Terminal (G-ASNT) gives our ground forces a multi-band communications system to maintain situational awareness and relay direction to nuclear forces not in direct contact with decision makers.

Cutting across all of these capabilities is the cyber defense of the systems themselves. Our NC2 hardware infrastructure fails if the NC3 fails due to a cyber-attack. We must continue to invest in active, persistent cyber defense of our NC3 systems, both current and future. We have collaborated with USCYBERCOM, USD(A&S), and the Services to ensure our existing NC3 systems remain free of adversary influence in real time and to protect our future NC3 acquisitions and sustainment from cyber threats. Cyber defense is not a "trade space" discussion; it is an additive necessity in today's technology-centric world.

USSTRATCOM, as the NC3 Enterprise lead, will continue to develop the Enterprise's future requirements and ensure a safe, secure, and reliable architecture for the future. As we move towards the next generation of NC3, we must work with industry to rapidly prototype new technologies and experiment with them to determine their effectiveness. In addition, we will continue cooperation on NATO NC3 systems that require modernization to enable appropriate consultations and effective nuclear operations, improve survivability, resilience, and flexibility. We need to move rapidly and if a new technology appears promising, acquire and field it quickly – and if our experiment shows it is not feasible, to "fail fast," and move on. We rely on the necessary resources for sustainment and modernization of NC3 systems. We must also attract the right experience and talent needed to fulfill enterprise manpower requirements to develop the innovative NC3 solutions described in the NC3 Enterprise Center Mission Needs Statement. A combined effort between the Services and Agencies, National Labs, industry, and academia are necessary to generate innovative ideas, establish working

relationships with key stakeholders, and maintain deterrence during this transition. I am confident in the forming relationships and the direction the Department is taking to prioritize NC3 modernization.

GLOBAL STRIKE

Strategic competitors continue to invest in and rapidly develop anti-access/area denial capabilities to counter U.S. military advantages in power projection and freedom of movement. Additionally, competitors are developing hypersonic weapons as part of this counter-intervention strategy. The Department requires flexible, prompt, survivable response options for global strike. Continued investment and a commitment to fielding advanced capabilities are crucial to offset these threats and ensure our deterrence and conventional power remains strong into the future.

Offensive hypersonic strike weapons will provide conventional capabilities to ensure the Joint Force can deter aggression in contested environments short of nuclear use. They provide a highly responsive, long-range, conventional strike capability for distant, defended, or time-critical threats when other forces are unavailable or not preferred. Fielding advanced hypersonic capabilities will allow us to tailor our strategies and plans with an expanded range of conventional options. While not a replacement for nuclear weapons, new classes of hypersonic weapons will complement and enhance strategic deterrence and can deliver surgical strikes to provide effects or be integrated into larger campaigns, increasing the effectiveness of our warfighting advantages.

For more than a decade, the U.S. matured its hypersonic strike technologies and successfully demonstrated their significance to future warfighters. FY2020 represents a pivotal year for hypersonic weapon development and fielding as the Department begins aggressively flight testing capabilities across multiple domains and posturing the industrial base to produce these systems at scale to allow the Services to field operational capabilities in the near-term. A flexible mix of capabilities launched from land, sea, and air will provide a constant, visible, and global presence designed to influence adversary behavior in all stages of conflict without crossing the nuclear threshold, and will provide an effective deterrent and strike capability in the near-term to address current and future threats.

MISSILE DEFENSE

As a global warfighting command, Commander, USSTRATCOM is the coordinating authority and is responsible for global missile defense planning in coordination with other combatant commands, Services, and agencies that employ our Nation's missile defense capabilities. USSTRATCOM's Joint Functional Component Command for Integrated Missile Defense (JFCC-IMD) supports missile defense operations worldwide: this means helping to identify and minimize gaps and seams in regional planning,

conducting missile defense operations support, and advocating for capabilities on behalf of all other combatant commanders.

While current missile defense capabilities ensure defense of the homeland against a rogue ballistic missile threat, a concerted U.S. effort is required to expand and improve existing capabilities for both homeland and regional missile defense. Potential adversaries are improving existing missile system capabilities and capacities, blurring missile defense operations across traditional regional boundaries. Solving the trans-regional threat, increased range, and lethality requires more than just active missile defense; we must address the problem of decreased warning and adjust defensive postures appropriately. Navigating this environment requires a comprehensive approach that establishes a renewed emphasis on leveraging opportunities to negate missile threats prior to launch, during all phases of flight, and after impact, drawing on effects generated from capabilities throughout all domains.

As the warfighter advocate for missile defense, USSTRATCOM must focus developers on examining, developing, and exploiting advanced concepts and technologies. Research and development across all domains is key to ensuring we keep pace with evolving adversary threats, such as hypersonic weapons and cruise missiles. Future space-based sensors may be able to provide birth-to-death detection, tracking, and discrimination of hypersonic glide vehicle, cruise missile, and ballistic missile threats globally. These abilities cannot be fully achieved with the current or future terrestrial-based radar architecture due to the constraints of geography and characteristics of future missile threats.

Our regional missile defenses protect against missile attacks on deployed U.S. forces, Allies, and partners; assist Allies and partners in better defending themselves; preserve freedom of action; and counter adversary anti-access/area denial tactics. However, challenges remain to the Department's efforts to fully integrate and optimize limited defense resources and architectures through Allied and partner integration and interoperability. USSTRATCOM's NIMBLE TITAN exercise series, with participants from 24 countries and four international organizations, advances multinational collaboration through the experimentation of operational integration concepts to enhance deterrence and defense against missile attacks.

The Ground Based Interceptors (GBI) currently emplaced have the capability of defending the homeland from today's rogue threat. Although we are pursuing development of the Next Generation Interceptor (NGI) to complement our GBI capability, we need to examine new approaches to defeat ICBMs in ways that repurpose existing options and are cost effective. As we address future threats, we must account for the air and missile defense assets required to defend the homeland, while simultaneously improving our regional security architectures. We continue to embrace new and developing technologies and find innovative ways to use, as well as repurposing existing technologies to strengthen and expand

current capabilities. Examples include developing an underlay for homeland defense to account for ballistic missiles and using existing sensors for tracking ballistic, hypersonic, and cruise missile threats.

The 2019 Missile Defense Review (MDR) provided an opportunity to conduct focused reviews clarifying and optimizing missile defense roles and responsibilities across the Department. In accordance with the MDR, the Department is reviewing policy, responsibilities, and procedures for missile defense research, development, test and evaluation, procurement, operations, and sustainment. Revised improvements to the Warfighter Involvement Process (WIP) will meet 2019 MDR guidance, align with Department budget process and maximize warfighter input in capability development and acquisition, and seeks to deliver missile defense capabilities in a timely manner. USSTRATCOM is working with the community of interest to update the WIP and incorporate findings established in the MDR. As Commander, I will continue to advocate for missile defense requirements through continued capability and utility assessments and by ensuring operational tests and evaluations meet warfighter demands. Missile defense endures as a critical component of comprehensive U.S. strategic and tailored regional deterrence strategies and is a key element of any integrated response options.

JOINT ELECTROMAGNETIC SPECTRUM OPERATIONS (JEMSO)

The Electromagnetic Spectrum (EMS) is the one physical maneuver space depended upon by forces across all warfighting domains. If we cannot achieve EMS superiority and assure access to the EMS, the joint force cannot prevail. Our adversaries have observed our use and dependence on the EMS, and have developed and organized their forces to achieve EMS superiority; it is essential we develop capabilities and appropriately organize to counter this threat. Achieving and maintaining EMS superiority is the critical enabler for successful Joint Force operations.

To address warfighter requirements, USSTRATCOM collaborates with the Secretary of Defense Electromagnetic Spectrum Operations (EMSO) Cross Functional Team, the Electronic Warfare Executive Committee (EW EXCOM), the Services, the DoD Chief Information Officer (CIO), the joint staff, and Under Secretary of Defense offices to advocate for essential warfighter EMSO capabilities. Additionally, we engage with Australia and North Atlantic Treaty Organization partners to ensure compatible JEMSO doctrine, capabilities, and concepts of operation.

USSTRATCOM led the effort to create the first Joint Publication for JEMSO. Working with DoD CIO and Defense Information Systems Agency (DISA), USSTRATCOM provided the initial warfighter requirements for an Electromagnetic Battle Management (EMBM) system to achieve EMS superiority. In coordination with the DISA Defense Spectrum Organization, USSTRATCOM is establishing the initial Joint Electromagnetic Spectrum Information Analysis and Fusion capability that will provide spectrum specific data for battle management and combatant command operational cells.

Our Command also led a combatant command JEMSO cell manpower requirement validation study through the joint manpower validation process for the FY2022 Program Objective Memorandum budget. All of these warfighter requirement initiatives will require sustained investments.

CONCLUSION

USSTRATCOM is a global warfighting command, actively and successfully deterring strategic attack against our Nation and our Allies. The men and women of our Command are committed to maintaining a safe, secure, reliable, and effective deterrent for our Nation. If deterrence fails, our combat-ready force is prepared now to deliver a decisive response anywhere on the globe, across all domains, in coordination with geographic and global warfighting combatant commanders and our Allies and partners.

The Command is focused on integrating strategic deterrence in the 21st century, expanding the intellectual capital to educate the joint force on deterrence and nuclear policy, and ensuring our forces are prepared to meet challenges in the global security environment.

Our strategic forces provide the foundation and credibility that backstops all U.S. military operations and diplomacy around the world. Our triad remains the most effective way to deter adversaries from conducting strategic attacks against our Nation and our Allies and partners. Our Nation's strength has helped deter great power war and we must continue to prioritize the capabilities that underpin our strength.

Our Nation is at a critical point in maintaining our strategic advantages and must remain committed to modernization and recapitalization programs in place. Our strategic forces are a prudent investment in the current and future security of our Nation, with some systems scheduled to operate effectively well into the 2070s and 2080s. With continued Congressional support and budget stability, we can continue to pace the threat and develop the future force necessary to guarantee the continued execution of the Department's highest priority mission, to keep our Nation and our Allies safe.

Admiral Charles A. "Chas" Richard
Commander, U.S. Strategic Command

Adm. Chas Richard is a native of Decatur, Alabama and a 1982 graduate with honors from the University of Alabama. He earned master's degrees with honors from the Catholic University of America and the Naval War College.

His most recent assignment was commander, Submarine Forces, Norfolk, Virginia. Other flag assignments include deputy commander, U.S. Strategic Command, director of Undersea Warfare (OPNAV N97) at the Pentagon, deputy commander of Joint Functional Component Command for Global Strike at U.S. Strategic Command, and command of Submarine Group 10, Kings Bay, Georgia.

His operational assignments include command of USS Parche (SSN 683); Submarine NR-1, the U.S. Navy's only nuclear-powered, deep-submergence submarine. He also served aboard USS Portsmouth (SSN 707), USS Asheville (SSN 758), and USS Scranton (SSN 756).

Richard's staff assignments include service as the executive assistant and naval aide to the Under Secretary of the Navy; chief of staff, Submarine Force Atlantic; and command of Submarine Squadron (SUBRON) 17, Bangor, Washington. Other staff assignments include director of resources on the staff of the Under Secretary of Defense (Policy); squadron engineer on the staff of SUBRON-8 and duty on the Deputy Chief of Naval Operations (Submarine Warfare) staff. He has also served as a member of Chief of Naval Operations' Strategic Studies Group XXVIII, studying the integration of unmanned systems into naval force structure.

Richard assumed his current duties as commander, U.S. Strategic Command, in November 2019. He is responsible for one of 11 Unified Commands under the Department of Defense. USSTRATCOM is responsible for the global command and control of U.S. strategic forces to meet decisive national security objectives, providing a broad range of strategic capabilities and options for the President and Secretary of Defense.

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