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FY24 STRATEGIC FORCES POSTURE

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BEFORE THE

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OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

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HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES,
Washington, DC, Wednesday, March 8, 2023.

The subcommittee met, pursuant to call, at 3:01 p.m., in room 2118, Rayburn House Office Building, Hon. Doug Lamborn [chairman of the subcommittee] presiding.

OPENING STATEMENT OF HON. DOUG LAMBORN, A REPRESENTATIVE FROM COLORADO, CHAIRMAN, SUBCOMMITTEE ON STRATEGIC FORCES

Mr. LAMBORN. We look forward to your testimony.

As this is the first Strategic Forces Subcommittee hearing of the 118th Congress, I am going to take a chairman's prerogative and lay out some agenda and priorities for me.

I would like to start by acknowledging the new ranking member of the subcommittee, Mr. Seth Moulton of Massachusetts.

Weren't you on the screen just a moment ago for CSPAN? You must have hurried back over here.

Mr. MOULTON. I hustled. I am a Marine, I can hustle.

Mr. LAMBORN. And just from our short time working together in our new capacities, I am already confident that we will continue a strong bipartisan tradition of this subcommittee. So, I am pleased for us to officially start our work together today.

And I would like to welcome the new members of the subcommittee as well, who might be in and out as we are going through this hearing: Mr. Bacon of Nebraska, Mr. Banks of Indiana, Mr. Strong of Alabama, Mr. Norcross of New Jersey, Ms. Houlahan of Pennsylvania, and Mr. Vasquez of New Mexico.

I am honored to be the chairman of this subcommittee, and privileged to be the first person from Colorado to hold this position. I have been working on these issues for many years, as they are integral to the fabric of my district as well as to our national defense.

I have big shoes to fill. Recently retired Jim Cooper, Mike Turner, Mike Rogers, Ellen Tauscher are among those who have served so capably in this position while I have been in Congress.

Thank you to our witnesses for appearing today. And I wish we had the President's budget to inform our discussion. The budget was due last month, but it seems like we are still one day early.

Regardless, there are a lot of strategic issues that we can dig into today. Russia's unjustified invasion of Ukraine, which just passed its year mark, has been punctuated by attempts at nuclear coercion. Now Putin has suspended Russia's participation in the New START Treaty.

I understand that Russia has ceased providing the U.S. with treaty notifications, yet we continue to provide them for Russia. It is curious that we provide Russia with this benefit under our treaty when Russia is no longer reciprocating.

Given Russia's suspension and their false declaration that the U.S. is in material breach, the Joint Staff, with the help of STRATCOM [United States Strategic Command], needs to accelerate contingency planning should Russia begin uploading warheads on its strategic delivery systems beyond the numbers called for.

China is also building up its nuclear arsenal at an unanticipated and rapid pace, and is pursuing aggressive activities in all domains. Most notably, there is public reporting that Russia's state-owned Nuclear Energy Corporation ROSATOM [State Nuclear Energy Corporation] is helping China acquire enough weapons grade plutonium to fuel its strategic nuclear breakout. I am hopeful that we will see a comprehensive strategy from the Administration to break this relationship and, ideally, shutter ROSATOM.

Now that India—Excuse me. Now that China has surpassed the United States in the number of intercontinental ballistic missile launchers, STRATCOM has additional targets to hold at risk. I am sure we will hear from General Cotton about how that complicates his targeting efforts and challenges his ability to deter two near-peer nuclear adversaries simultaneously.

We can't also forget that North Korea has an ICBM [Intercontinental Ballistic Missile] program that is proceeding apace. And Iran has multiple space launch vehicle programs giving cover for the development of an Iranian ICBM.

Given all these threats, my priorities for the subcommittee include the following. We must accelerate and timely field hypersonic weapons systems for all three services, adjust our nuclear modernization program to deter both Russia and China simultaneously, and ensure our missile defenses can outpace the North Korean and forthcoming Iranian ICBM threats. This includes ensuring that the Department of Defense maintains the necessary spectrum to discriminate targets at range in the atmosphere at all times.

I will also continue to push the Department to develop a space policy we can debate in public. So, we will take a hard look at classification, and continue to push for changes in how we do space acquisitions as well.

Finally, I want to highlight that last year, on a bipartisan basis, Congress authorized and appropriated funds to the Navy and the National Nuclear Security Administration for research and development of the Nuclear Sea-Launched Cruise Missile, or SLCM–N [Nuclear Sea-Launched Cruise Missile]. The restriction in the NDAA [National Defense Authorization Act] only applies to production work and was not meant to constrain research and development in any way.

And I also hope to hear how the Department is progressing on the hard and deeply-buried target study.

With that, I will turn it over to Ranking Member Moulton for any remarks he would like to make.

STATEMENT OF HON. SETH MOULTON, A REPRESENTATIVE FROM MASSACHUSETTS, RANKING MEMBER, SUBCOMMITTEE ON STRATEGIC FORCES

Mr. MOULTON. Thank you, Mr. Chairman. And congratulations on your appointment as chairman of this subcommittee.

I know that you believe, as I do, that the issues this committee tackles are at the very core of our national security as a nation. Therefore, it is important that we work together in a bipartisan fashion to address the critical issues before us.

I already know that there is much that we agree on. And I hope that through open and transparent dialog and debate we can expand that area of agreement as we both learn more about these important and fascinating issues.

I would also like to welcome General Cotton, as this is your first Strategic Forces hearing. I am encouraged by our discussion last week. And your leadership is critical, given the growing global strategic threat to the United States.

I appreciate your view that strategic deterrence is much broader than nuclear weapons, as the world and the threats we face as a nation have evolved significantly since our nuclear triad was first established. I look forward to learning more about how you understand and apply integrated deterrence across multiple demands as you take command of STRATCOM.

And as we welcome you, I also want to acknowledge that this will be General VanHerck's final or last strategic forces posture hearing. Thank you, sir, for your 36 years of distinguished service to our nation and the past 3 years as head of Northern Command. During that time you have shown great leadership across a range of critical issues, from welcoming our Afghan refugees, responding to COVID–19, and highlighting the need for better situational awareness over the continental United States which, as we saw very clearly last month, is not just a hypothetical or a future need.

So, thank you to all our witnesses for being here and for helping us begin the important work of writing the fiscal year 2024 National Defense Authorization Act.

As we sit in this hearing, Russia continues to wage an unconscionable war against Ukraine using veiled threats of nuclear weapons, not to keep the peace between superpowers, but offensively to try and turn around its losing war.

Meanwhile, China is launching satellites that have dual use capability, putting U.S. systems at risk.

North Korea has been consistently launching ballistic missiles that can reach the United States.

And just last week, the U.N. [United Nations] International Atomic Energy Agency reported that they have found uranium enriched to near bomb grade purity at an Iranian nuclear facility.

The mission of this subcommittee is growing in scope, importance, and urgency.

Our witnesses do not oversee development of weapons systems per se, but they are responsible for current operations, and are given the challenging task of predicting what the Department of Defense will need in the future to maintain strategic deterrence across all demands—air, land, sea, space, and cyber.

While we are clear-eyed about the advancements our competitors are making in various weapons systems, we must also reflect on how our decisions, actions, and statements are understood by those competitors and adversaries to avoid starting or escalating an arms race, or worse, a miscalculation that could have catastrophic effects.

Ultimately, we should have two shared goals: ensuring our credible deterrence and strategic advantage over our adversaries; and reducing the number of weapons and chances of warfare on all sides.

I am encouraged that the Biden administration is taking a more balanced approach to strategic deterrence while maintaining and modernizing the triad and focusing on the greatest strength of the United States—our partners and allies.

Dr. Plum, I am heartened to hear you say clearly that the Department—you are nervous now about what you just said—"the Department will protect and defend U.S. space capabilities along with those of our allies, partners, and the commercial sector when directed to do so."

And I welcome this Administration's real investments in domain awareness for what NORAD [North American Aerospace Defense Command], with the modernization of the over-the-horizon radars along the existing Northern Warning System architecture.

But there remains much work to be done in the jurisdiction of this subcommittee. And the strategic posture of the United States must remain a top priority across both the Administration and Congress.

I look forward to working, to conducting that work together over the next two years.

Thank you, Mr. Chairman. I yield back.

Mr. LAMBORN. Okay. Thank you.

Now we will move from opening statements, from our opening statements to those of the witnesses. I would note that your prepared statements will be made part of the record but you will each have 5 minutes to make some opening remarks.

And, Dr. Plum, we will begin with you.

STATEMENT OF DR. JOHN F. PLUMB, ASSISTANT SECRETARY OF DEFENSE FOR SPACE POLICY

Secretary PLUMB. Thank you very much.

Chairman Lamborn and Ranking Member Moulton, thanks for inviting me to testify on strategic forces posture. I appreciated sitting down with both of you last week. And I look forward to working with you in the new roles, as well as with the rest of the distinguished members of this committee.

Today the United States finds itself in a highly dynamic and challenging security environment as characterized by intensifying strategic competition, assertive behavior by multiple competitors, rapidly evolving domains of conflict, and a growing risk of military confrontation.

China and Russia have placed nuclear weapons, space warfare, and long-range strike at the center of their strategies to counter the United States and our allies and partners.

As Secretary Austin has said since his first days in office, China is the Department's facing challenge. China is engaged in a significant and fast-paced expansion and diversification of its nuclear forces. Like Russia, China views space as a war fighting domain, and China is developing, testing, and fielding sophisticated counter-space capabilities intended to deny the United States our space enabling advantage.

And China has an ever-growing inventory of sophisticated long-range strike systems to hold U.S. forces at risk at greater and greater distances.

In Ukraine, Russia's illegal and unprovoked full-scale invasion has showcased the critical role of strategic forces in conflict.

Space systems inform U.S. national security decisions every single day. President Biden has declassified intelligence gained from U.S. space assets to counter Russian misinformation.

The Ukrainian military has been leveraging proliferated satellite broadband constellations in innovate ways to support their own operations.

Russia has repeated, has conducted repeated missile attacks against civilian infrastructure, which highlights the need for air and missile defenses. And as some of the members have already said, Putin's irresponsible nuclear saber rattling has further underscored the importance of U.S. nuclear deterrence, which is the bedrock of our own national security.

Just this last October, the Department released unclassified versions of the national defense strategy, the nuclear posture review, and the missile defense review. Together, these documents recognize that the United States is entering a period of heightened risk, and they articulate an urgent imperative to strengthen deterrence.

The national defense strategy identified four priorities for the Department:

One, defend the homeland;

Two, deter strategic attacks;

Three, deter aggression while preparing to prevail in conflicts, and we are prioritizing China first and then Russia;

And, four, build a resilient Joint Force.

All four of these priorities rely heavily on our space systems, our missile defenses, and our nuclear forces.

Cooperation with allies and partners is also a core element of the national defense strategy, and it is central to our national security and deterrence goals. The Department is actively pursuing deeper cooperation to enhance our extended deterrence commitments, to achieve combined space operations, and to share data in real time to support air and missile defenses. Our allies and partners are an asymmetric advantage that neither China nor Russia can ever hope to match.

Now, for the Department, we are clear-eyed about the threats we face and the importance of our nuclear, space, and missile defense forces in defending the nation. The Department is committed to making critical investments in our nuclear triad modernization, in a more resilient space architecture, and in homeland and regional missile defenses.

These investments will be detailed in the upcoming, forthcoming fiscal year 2024 budget request, but these investments are necessary to deter conflict and to fight and win if deterrence fails.

So, thank you to the committee for its tireless dedication to the Department and our servicemembers. And I look forward to your questions.

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

Mr. LAMBORN. Thank you. And I didn't say it, but Dr. Plumb is the Assistant Secretary of Defense for Space Policy with the U.S. Department of Defense.

Now we will hear from General Glen VanHerck, Commander of the United States Northern Command, and North American Aerospace Defense Command.

STATEMENT OF GEN GLEN D. VANHERCK, USAF, COMMANDER, UNITED STATES NORTHERN COMMAND AND NORTH AMERICAN AEROSPACE DEFENSE COMMAND

General VANHERCK. Thank you.

Chairman Lamborn, Ranking Member Moulton, and members of the committee, the subcommittee, thank you for your opportunity to appear this afternoon before the Strategic Forces Subcommittee along with General Dickinson, General Cotton, and Assistant Secretary of Defense for Space Policy, Dr. John Plumb.

As you know, I testified this morning before the full committee. Therefore, I will be brief in my remarks here in the open session. I look forward to the classified discussion later.

The United States military remains the most powerful and professional force in history. However, I would like to reiterate our competitive advantage is eroding, but I believe our greatest risk for the United States stems from the inability to adapt at the pace required by the changing strategic environment.

Our commands and the Department of Defense need your continued support to outpace the rapid gains made by our competitors. On behalf of all the soldiers, sailors, airmen, Marines, Guardians, Coasties, and the civilians at NORAD and NORTHCOM [Northern Command], I would like to thank the subcommittee for your steadfast support for all those who defend our nation.

I look forward to your questions.

[The prepared statement of General VanHerck can be found in the Appendix on page 56.]

Mr. LAMBORN. Thank you.

And our next witness is General James Dickinson.

And I want to say, as was said for General VanHerck, this is probably your last testimony before this subcommittee. And you will be missed. And we want to thank you for your decades of service, including most recently the standing up and the shepherding of Space Command.

So, the Commander of the U.S. Space Command, General James Dickinson.

STATEMENT OF GEN JAMES H. DICKINSON, USA, COMMANDER, UNITED STATES SPACE COMMAND

General DICKINSON. Thank you, Chairman Lamborn and Ranking Member Moulton. Good afternoon, ladies and gentlemen of the committee.

It remains my distinct honor to represent the 18,000 military servicemen and women, civilians, and families of U.S. Space Command who are serving our great nation today around the world. Thank you for this opportunity to testify before this committee. I look forward to both this session as well as the closed session.

I am proud to lead such a talented and patriotic group of joint space professionals. Their expertise, diversity, and creativity underpin our strength and effectiveness. Of all the elements of space power, our most valued asset is and always will be our great people.

My provisional headquarters achieved initial operational capability in just two years. And we will reach full operational capability through the disciplined initiative of our people. Space power enables our way of life and is a critical component of our national security.

I want to thank Congress for its support to advance America's primacy in space. We must maintain our position of advantage in the space domain and ensure it remains sustainable, safe, stable, and secure.

The Joint Force relies on space-based capabilities to project and employ power. China and Russia consider this dependency a soft underbelly and seek to exploit it. They intend to limit our access to space during crisis and conflict, and they are building capabilities to that effect today.

Our strategic competitors' irresponsible actions have transformed space into a contested domain. We must prevent today's strategic competition from growing into a conflict in space. We achieve this by deterring aggression, defending national interests and, if necessary, prevailing in any domain.

U.S. Space Command contributes to integrated deterrence by preserving freedom of action in space and by providing critical support to the rest of the Joint Force. Our mission spans the spectrum of conflict and in every domain.

For example, we are creating concepts to further integrate space, cyber, and special operations to generate asymmetrical advantages around the globe.

Additionally, our protect and defend mission involves all three segments of the space architecture—the ground, link, and space—an approach that requires all-domain solutions. My Command's planning horizon is short. It is near-term. We must be ready to fight today because the threat will not wait.

To this end, we are leveraging the Joint Force, our allies and partners, to integrate and maximize the capabilities that we have today. At the same time, we look forward to the capabilities the services are developing for the future fight.

As we observe in Ukraine, commercial space assets are a significant force multiplier. For years our commercial mission partners have augmented our satellite communications and provided en-

hancements to our space domain awareness sensor networks. Commercial integration is critical to mission success.

So, today's hearing reasserts the United States' resolve to maintain our leadership and position of advantage in the space domain.

But before I address the committee's questions, I just want to emphasize to the American people my pledge that U.S. Space Command will ensure that there is never a day without space.

Thank you.

[The prepared statement of General Dickinson can be found in the Appendix on page 82.]

Mr. LAMBORN. Thank you.

And the last of our four witnesses will be General Anthony Cotton, the Commander of United States Strategic Command.

STATEMENT OF GEN ANTHONY J. COTTON, USAF, COMMANDER, UNITED STATES STRATEGIC COMMAND

General COTTON. Good afternoon, Chairman Lamborn, Ranking Member Moulton, and distinguished members of the committee. I appreciate this opportunity to testify next to ASD [Assistant Secretary of Defense] Plumb, General VanHerck, and General Dickinson. And I thank the committee and Congress for its support for our national defense.

First, I, along with my command senior enlisted leader, Sergeant Major Howard Kreamer, want to ensure you and the American people that the United States Strategic Command is ready today, ready to defend our nation, defend our allies, and respond decisively if our adversaries miscalculate.

As we speak, there are command watch standers at their stations: missileers, maintainers, security forces on alert, submariners on patrol, air crew on duty, standing guard. The men and women of the United States Strategic Command are the foundation for the capabilities that underpin our nation's strategic deterrence. They do this in an environment that continues to grow more complex and challenging.

Russia's invasion of a sovereign Ukraine is an attempt to undermine the rules-based international order with conventional force backed by nuclear saber rattling. As this conflict continues and Russia's conventional forces fail to achieve President Putin's strategic objectives, Strategic Command is monitoring for any indications of escalation.

How this conflict unfolds and eventually ends will shape the strategic environment for decades to come.

We see the People's Republic of China continuing to rapidly expand its nuclear capabilities. The PRC's [People's Republic of China's] actions are wholly inconsistent with its long-professed policies of minimum deterrence.

I reported to Congress in May that the number of land-based intercontinental ballistic missile launchers in the PRC now exceeds that of the United States. Along with its significant modernization and expansion of conventional capabilities, the PRC is also investing heavily in lower yield precision weapons with theater ranges, a new generation of mobile missiles, and a hypersonic glide vehicle with fractional orbital bombardment systems.

The PRC's nuclear modernization provides it with an alarming number of offensive options that can negatively shape the environment before and during a crisis or conflict.

North Korea continues to be a rogue actor and poses a threat to the United States and our allies. North Korea conducted a unprecedented number of missile launches in 2022. And its new intercontinental ballistic missile, referred to as the KN–28, highlights that the strategic challenge and security challenge will continue to grow.

We are meeting today's challenges, though, through integrated deterrence, the cornerstone of the NDS. Our unmatched network of allies is a key component of integrated deterrence, and these relationships are underpinned by our extended deterrence commitments. These commitments are enabled by a safe, secure, effective, and credible nuclear deterrent. The credibility of our extended deterrence commitments is not only part of the nation's ironclad commitment to our allies, but has also been essential in limiting the proliferation of nuclear weapons.

The nation's nuclear forces underpin integrated deterrence and enable the U.S., our allies, and our partners to confront aggressive and coercive behavior.

To ensure our continued ability to serve as the bedrock of integrated deterrence, we are recapitalizing every leg of the nuclear triad and the nuclear command, control, and communications spectrum, as well as addressing the electromagnetic spectrum. These long-term investments are going to be absolutely required for us to make sure that we have a predictable, stable, and efficient nuclear force.

Finally, I want to start as I ended. Our people are the foundation of every capability that enables strategic deterrence. I am proud to serve alongside the Soldiers, Sailors, Airmen, Marines, and Guardians, and our civilians at STRATCOM. I am very appreciative of everything the committee and Congress is doing for us along those goals. And it's an honor to be here. And I look forward to your questions.

[The prepared statement of General Cotton can be found in the Appendix on page 106.]

Mr. LAMBORN. Thank you, General. And you did mention hypersonic vehicles. This subcommittee will be having a hearing on that subject Friday morning at 9:00 o'clock. And like the one here today, it will be a public hearing followed by a classified hearing afterwards.

So, we will start with questions. And with the first round of questions we will see if we have time for a second round or not. We do have votes at 5:30, which means we should be able to have our classified session at 4:30—and the SCIF [Sensitive Compartmented Information Facility] is occupied until then—well before we have to go for votes. And should be able to wrap up everything by that time.

Thank you all again for being here.

Dr. Plumb, various open source outlets, along with a very detailed Bloomberg story from last week, reported how Russia, specifically ROSATOM, is providing highly enriched uranium for Chinese fast breeder reactors. These reactors will almost certainly help

accelerate the pace of the Chinese nuclear weapons program by producing weapons grade plutonium.

How concerned is the Department that ROSATOM is helping China accelerate the pace of its nuclear weapons program?

Secretary PLUMB. Thank you, Congressman. It is very troubling to see Russia and China cooperating on this. And they have talking points around it, but there is no getting around the fact that breeder reactors are plutonium, and plutonium is for weapons.

So, I think the Department is concerned. And, of course, it matches our concerns about China's increased expansion of its nuclear forces as well, because you need more plutonium for more weapons.

Mr. LAMBORN. General Cotton, this highlights the concern that we all share about China's seeming nuclear breakout. It was mentioned that they have now more launchers than the U.S., and they are working on warheads as well.

So, the number of targets we have to hold at risk is rapidly growing because of China's nuclear breakout. But the forces available to you remain unchanged.

How does the Department reconcile this?

General COTTON. Chairman, thank you for the question.

I think as we discussed last week, one of the things ——

Mr. LAMBORN. And if you could hold the microphone just a little closer. Thank you.

General COTTON. Does that work, sir? There we go.

One of the things that actually the NPR [Nuclear Posture Review] gives us an opportunity to do is have a conversation on strategy and have a conversation on force posture. And as the conversation we had last week, I think that conversation is going to have to be had.

When we talk about the forces that we currently have today, that force that we have today was based on a adversary of which for the first time in the history of the United States of America we now have two that are nuclear peer adversaries.

Now we are going to have this conversation in regards to what does it look like now as far as force posture moving forward.

Mr. LAMBORN. Thank you. And that is a critical conversation we will all be having here in the subcommittee, and the full committee as well.

On the issue of electromagnetic spectrum operations, General, can you describe—or let me back up.

As I emphasized in my opening statement, I think DoD [Department of Defense] needs to commit to fixing electromagnetic spectrum operations and plugging the holes identified in the Northern Edge Exercise. I understand that this has the attention of Secretary Hicks and Admiral Grady. And I hope that we will have good progress on this.

Can you describe some of the ways that STRATCOM relies on spectrum to support your missions? And what are some of the future spectrum that—spectrum warfighter needs that will be essential to competing with Russia and China on a future battlefield, if necessary?

General COTTON. Chairman, thank you for that question.

You know, I don't think it is any different than the requirements that are with my fellow commanders that are here. STRATCOM depends on EMS [Electromagnetic Spectrum Superiority Strategy] to successfully provide deterrence and deliver decisive response when called upon.

The things that I worry about is we need to ensure that we have spectrum for employment of forces; to maintain situational awareness; to assure communications via all domains, space, maritime, air, and land; and to assure positioning with PNT [Position, Navigation, and Timing] with position navigation systems.

What we are doing within STRATCOM is my top priority is to execute the DoD EMS superiority strategy implementation plan.

What we are going to do is we are actually in the midst of standing up a two-star joint EMS operations center known as the JEC [Joint Electromagnetic Spectrum Operations Center]. Direct reports to me that raises and aggregates force readiness across the Department.

We will continue to ensure that the Joint Force appropriately is organized and equipped to handle EMS. I am responsibility for advocating the proper training when it comes to EMS. And as we said when I had my conversation with you last week, what makes this particularly helpful to me is the fact that my direct report will be the Deputy Secretary of Defense, who can direct services to take action.

Mr. LAMBORN. Okay, thank you.

I have a little follow-up on that issue and then I will turn it over to others.

The 3.1 to 3.45 gigahertz band of radio frequency spectrum is being studied by DoD and the Department of Commerce for consideration for auction by the FCC [Federal Communications Commission]. Can you speak to the value of this specific band for target discrimination at range in the atmosphere for from everything from missile defense to tracking Chinese spy balloons, which has been in the news?

And, Dr. Plumb, you and General Cotton, please.

General COTTON. Well, from my perspective it is what I have just mentioned as far as the things that are required for me to be able to execute and exercise and employ the forces.

I think if we lose that spectrum, all of those things that I had articulated to you that is required for me for force employment, for maintaining situational awareness, for having assured navigation and timing, and assured cons, that could potentially be lost.

And I would, I would yield to Dr. Plumb for further questions.

Secretary PLUMB. Thanks, Congressman.

That particular portion of the band, the S band there from 3.1 to 3.45 is absolutely essential for DoD operations. The Department of Defense is conducting a study with the Department of Commerce on whether we can share that spectrum.

For DoD, we need to be able to maintain our operational capability and readiness in any result. And I will just say we have looked at what it might take to vacate, by which we mean leave that band and go somewhere else. We don't know where else we would go. And it would easily $120 billion, probably more, just to create the pieces. But that isn't the same as getting the studies and

the physics done, or the recapitalization. It could take easily 20 years. It is a really difficult problem for us.

And so we think that the only viable forward would be is there some way to share so DoD can operate there, and so other, you know, commercial companies might be able to use that as well without impeding on us.

Mr. LAMBORN. Did you say 120 million or billion?

Secretary PLUMB. That is billion with a B. And that is kind of our low estimate. And I don't want that to be confused with what it would actually cost because that is really just if you look what would it cost to make a new AEGIS radar. But that is not the same as figuring out the physics and all the testing that would go into figuring out what band we would have to use it in, let alone the decades of experience we have with the equipment now to understand how they work.

Mr. LAMBORN. Okay, thank you both.

I turn it over to Representative Moulton.

Mr. MOULTON. Thank you, Mr. Chairman.

Let me begin with an apology to General Dickinson. I did not know this is your last hearing before us as well. I understand you have been serving for 38 years, so you have, you have outdone your seatmate by two. Thank you for your incredible service.

You are the senior air defense artillery officer in the United States Army today. And that is a job that for a long time we didn't think was terribly important because of our air superiority. And now we realize how unbelievably critical it is.

So, we have been very lucky to have you. We are grateful for your service. And I think I can confidently say that we will probably miss you more than you will miss us. But good luck.

Let me start with this, this is for, General Dickinson, for you and for Dr. Plumb.

Over 10 years ago the joint operational access concept predicted that "a logical opening operation to any anti-access campaign from China against the United States is to neutralize U.S. space assets because space such a critical role in enabling operations on the Earth's surface."

Dr. Plumb, General Dickinson, do you believe this is a reasonable assessment?

General DICKINSON. First of all, thank you for those kind remarks as you get ready to ask the question. It has been an honor to serve in the U.S. military for 38 years.

To your question, I think we just have to look, quite frankly, at some of the PLA [People's Liberation Army] writings on doctrine and strategy that do suggest what you just mentioned, which is that the reconnaissance, communications, navigation, and even early warning satellites could—I am not saying will—could be among the possible first targets to be attacked.

And so just in accordance with their own strategy, their own doctrine, we have reason to believe that that might be the case.

Mr. MOULTON. And Dr. Plumb is nodding his head. So, I will take that as agreement.

So, if war with China could start in space, then deterring war with China seems to require having an effective space deterrent. Do you agree?

General DICKINSON. I do agree with that.

Mr. MOULTON. One of the challenges with deterrence is it is not just enough to have capabilities that exceed your adversary's capabilities, they have to believe that. Right?

I mean, we can look back and say, you know, we knew we would be able to get together the most remarkable coalition of NATO allies since World War II to push back Russia out of Ukraine. The problem is that Vladimir Putin did not believe that before he started this war. And so, we did not effectively deter, prevent this war from happening.

So, Dr. Plumb, perhaps we could start with you. We are developing some exquisite space capabilities that you are overseeing. But how do we effectively communicate this to our adversaries so that they believe it?

Secretary PLUMB. Thanks, Congressman.

I would say just to start with I think they, they know that, well, we have space superiority right now. And they know that this is not an opportunity for them to move forward.

And our goal at the Department of Defense is to make sure that really every day that President Xi wakes up is not the day that he thinks this is worth the attempt to go after Taiwan. And we use as Taiwan as our pacing scenario. I think it is a good frame of reference, regardless of the actual scenario we put out.

I will just say I think you are getting to the reveal/conceal question. And I actually think we should not overlook statecraft as well. Right? So, we do communicate back and forth between nations, and they use their statecraft to see or to try to discern what we are doing.

I personally believe there is great value in some ambiguity. But your point is well taken.

General Dickinson, do you have, I know you have worked in particular on declassifying some of the work that we are doing, to better communicate this to our adversaries. Do you have anything to add?

General DICKINSON. That is one of the areas within the Command that we are looking very closely at is how do we get to a—you mentioned the allies and partners, and how critical they are, not only in the space domain and what we do there, but in the other domains as well.

And so, when we look to integrate and operate with the allies and partners, it is critical that we take a very close look at, you know, overclassification and classification period, so that we can share necessary information with our allies and partners. And we are working on that every day in U.S. Space Command.

We have had a couple of areas where we have had some success in that. Like, for example, we have run operational Big Defender every day, which is really the operations that does our space enabling responsibilities to the Joint Force each and every day. That has been traditionally held at a NOFORN [Not Releasable to Foreign Nationals] level. And just within the last year we have been able to start sharing that with the Five Eyes.

There are many other examples, but that is, that is one in particular that I think worth noting.

Mr. MOULTON. Thank you.

General Dickinson, another question for you. As everyone on this committee well knows, the DoD has not invested sufficiently in space until quite recently. My question is will the budget that we receive tomorrow have enough in it to protect, defend, and reconstitute our space assets?

And where should we invest more?

General DICKINSON. Well, first-off I would say since we have stood up in 2019 as a combatant command, Congress' support to what we are doing—and I even mentioned it in my opening statement where I said helping us sustain primacy in the space domain—has been very good.

And I thank the Congress for the monies and the resources that are going towards us in that effect.

The Command has had a good opportunity over the last 4 years as well to start developing the requirements that we need in support of our operations. And we have done a lot of that. We have been able to codify that through the normal processes within the Department in terms of identifying requirements, ICDs [Intelligence Community Directives] for example, JUONs [Joint Urgent Operational Needs], IPLs [Integrated Priority List], those kinds of normal functions within the Command to put a demand signal, if you will, on the Department and what we will need in the space domain.

So, I am pleased with that. And, again, I think if you look at what one of my, my number one priority is in terms of what more do I need, is the ability to increase my space domain awareness. So, as we look to today and into the future, and with the growing congestion, if you will, in the space domain with regards to current satellites, operating satellites, defunct satellites, debris itself, it is becoming a bigger challenge to be able to do that. We have to have the capabilities to be able to see and characterize what is going on in the space domain.

So, top priority for the Command right now is to make sure that we increase that.

And I can go into details, if you would like, on how we are approaching that.

Mr. MOULTON. No, it is very helpful. And a message that we have heard loud and clear from General VanHerck is that domain awareness is absolutely critical and something that we need to improve. So, he may be 2 years your junior but he is very much following in your footsteps on that count.

General Cotton, final question. Mr. Banks, I guess he has parted for a time, but he and I co-chair the Future Defense Task Force. And we looked at a lot of things across the spectrum of war fighting and, you know, trying to determine where we need to be in the future.

And, of course, we focused a lot on technology and the technology that we need to invest in to keep pace with our adversaries across the globe.

But another point that we made is it is not enough just to invest in technology. You have to know how you are going to use that technology. And sometimes in the past we have made the mistake of pursuing a technology because it seems like the hot new thing, without having a clear understanding of how we might actually

employ that technology. And, therefore, sometimes that money goes to waste.

So, we are putting a lot of money into hypersonics. But I asked this question recently, last year, of some of your colleagues and people at the Department: how do you actually plan to employ hypersonic weapons?

We are going to invest a lot in them because China has them, too, but how do you actually plan to employ them? What are the operational concepts for the use of hypersonic weapons?

And I can tell you we got a very dissatisfying answer. A lot of stares, a lot of blank stares saying we are not quite sure yet. Well, that is not a good enough reason to invest in them.

So, tell us how your thinking has involved on the employment of hypersonics, and why—see, explain to the American people why it is critical that we put such an enormous amount of money into these new weapons systems?

General COTTON. Thank you, Ranking Member.

I think the answer to that is simple. Our adversaries already have them as a baseline, so they are using them as, they are using them as a deterrent already.

When it comes to us, within STRATCOM one of the things that we are already doing is we are prepared to accept utilizing hypersonic weapons as a strategic deterrent weapon because it has strategic effects.

Mr. MOULTON. Uh-huh.

General COTTON. So, one of the things that we are thinking through on my staff and that I am having my team do is to understand knowing that we are going to have low density, high demand assets at the beginning, that we can help in the planning and understanding of how we want to execute those weapons, just like we do any other strategic weapon.

That is not to say that when the cash gets a lot larger that it has to stay that way. But from my vantage point as a strategic deterrent lead, if you will, from STRATCOM, I see that as the entering argument on what I want to be able to do and utilize.

And, oh, by the way, the complementary factors of what it can do with a nuclear force as well as just strategic deterrence writ large. So, there is a nuclear deterrent aspect to this where hypersonics can be complementary to some of the effects that we would do in our planning, as well as what you would see from conventional long-range strike.

Mr. MOULTON. Let me ask one quick corollary to that.

A lot of theorists about nuclear weapons would argue that the weapons that we have had for some time, the triad, including ICBMs, which are sort of horrific in concept, are actually stabilizing weapons. I mean, they have prevented, they have helped prevent war between our super—the superpowers for decades.

Do you believe that hypersonics are a stabilizing or destabilizing strategic weapon?

General COTTON. I see hypersonic weapons just like I see the ICBMS as stabilizing weapons.

Mr. MOULTON. Okay. Well, I will tell you a lot of people disagree. And I think this is something we need to get to the bottom of.

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

Mr. LAMBORN. Representative Turner.

Mr. TURNER. Well, I certainly think that hypersonic weapons in the hands of our adversaries are destabilizing.

General Cotton, you and I had the opportunity to talk about the concerns of Russia stepping out of New START. The United States took several steps to comply with New START.

I, for one, believe that if they step out of New START we should not give them a pass. We shouldn't say we are going to continue to comply and stay within New START, and you can do whatever you want.

That means, of course, that we are going to have to up our game for deterrence. Because if they are going to expand their nuclear inventory but also continue to expand their nuclear offense capabilities, which I personally believe are many first strike weapon capabilities, we are going to have to look at reMIRV. We are going to have to be looking at the B–1, the B–52, how do we ensure the dual capability and the prevalence of the F–35 and, certainly, the expeditious completion and deployment of the B–21.

My question to you is, as we look out at all the things that we need to do, let's say there we wake up tomorrow and there is no New START, are there things the United States could and should do in response to that that could ensure our deterrence of our adversary that is self-declared, which is Russia?

General COTTON. Thank you for that question, sir.

First of all, nuclear, responsible nuclear parties stick to the treaties that they sign up for. Suspending NST [New START Treaty] from the Russian's perspective, from my perspective is irresponsible.

That being said, my responsibility is to be able to offer flexible deterrent options to the President. And we have already, we have already worked and have always worked in STRATCOM to be able to offer flexible deterrent options when required.

So, to answer your question, flexible deterrent options are always available to the President the United States.

Mr. TURNER. Excellent.

General VanHerck, we have obviously had a relatively robust conversation nationwide about our capabilities to see and understand threats and warnings to the United States and North America. We are also in the process of reinvesting because some of these systems are very old.

And, of course, some of these systems now with China's having, China having chosen to test a hypersonic weapons that orbits the Earth that looks like it is something that could be—remain in orbit and be a space-to-ground weapon, and for which all indications are their intentions to perhaps make this a nuclear weapon, we are going to have to look at how do we see better, how do we get greater fidelity, how do we look at areas where we might have blind spots?

But the next step we are going to have to look at is as China increases its nuclear weapons capabilities in China, and Russia increases its nuclear weapons capabilities, that we are going to be sort of beyond a world that is just mutually assured destruction and deterrence of we have nuclear weapons and you have nuclear weapons.

China is building them at such a pace that it is clearly not just their territorial integrity that they are concerned about, they are building them at a pace where we can even see in non-classified areas their new ICBMs areas.

If we are going to go beyond deterrence, we are going to have to add missile defense. We are going to have to add missile defense and we are going to have to add it in a robust fashion where we look at China and Russia as perhaps perpetrators. To do so we are going to have to upgrade what we look at for radars and sensing for North America.

Could you speak for a minute about what our current system is? What we are currently planning on doing for upgrade? And what would that leap look like that we would have to do in order to do integrated missile defense for the United States?

General VANHERCK. Yes, thank you for the question.

First, to be clear, our missile defense today does not, from a policy perspective, defend against Chinese ——

Mr. TURNER. Right. This is a radar question.

General VANHERCK. Okay. Chinese or Russia, radar question. So, first, I am concerned and very challenged for domain awareness. I will start with hypersonics.

If you can't see hypersonics it is hard to continuity of government, and it is certainly hard to protect your nuclear posture. So, therefore, I would say that would be destabilizing or erode our strategic stability from a standpoint of not being able to see them.

From the way forward I would ask two things:

For radars, over-the-horizon radars. We need those soon as possible. Ten years to field over-the-horizon radars does not make sense.

Then the question becomes what do you do with the data and information from those over-the-horizon radars? That needs to feed an integrated air and missile defense system that ultimately feeds some type of an in-game factor. That could be non-kinetic or kinetic, either one.

This problem is much larger than radars, by the way. It is also the P–LEO, U.S. Space Forces dealing to give us domain awareness for hypersonics and other missile systems.

Mr. TURNER. Thank you.

Mr. LAMBORN. Thank you.

Mr. Garamendi.

Mr. GARAMENDI. Thank you, Mr. Chairman. Thank you for the meeting. And congratulations on your chairmanship, and Mr. Moulton the same on the ranking.

Fascinating discussion thus far. I am going to ask the big question, a question that has been on my mind since I came to this committee, and that is, gentlemen, are we now, the United States, engaged in a new nuclear arms race?

Mr. Plumb and then on down the line, yes, no, and qualify if you want.

Secretary PLUMB. Thanks, Congressman. I, I don't think I would characterize it as a new nuclear arms race based on current numbers and based on what the historical arms race looked like when the numbers were multiples of this.

Mr. GARAMENDI. A different?

Secretary PLUMB. A different kind. Maybe a capabilities race perhaps. I don't know if that is quite the same as a nuclear inventory race.

Mr. GARAMENDI. Does that include General Cotton's new strategic weapon, similar to a nation—similar to a nuclear weapon, otherwise known as a hypersonic? I think that is what he just said.

Am I correct, General Cotton, didn't you just say that?

General COTTON. I said that if you were to ask what we could use as far as can a hypersonic be seen as a strategic weapon.

Mr. GARAMENDI. And then you went on to say part of the nuclear ——

General COTTON. I said it could ——

Mr. GARAMENDI.—strategic weapons.

General COTTON.—it could be complementary to our nuclear forces.

Mr. GARAMENDI. In other words, part thereof; correct?

General COTTON. No. Because, sir, we still use conventional forces to complement our nuclear forces today.

Mr. GARAMENDI. So it is not a strategic weapon?

General COTTON. You can have conventional strategic weapons ——

Mr. GARAMENDI. Or I suppose a ——

General COTTON.—as opposed to nuclear strategic weapons is what I was alluding to.

Mr. GARAMENDI. Similar to a HIMAR [High Mobility Artillery Rocket System] being a strategic weapon?

I guess I want to know where you are going here. Are we going to consider the hypersonic weapon being part of our strategic defense systems, as we consider the nuclear triad to be part of our strategic?

Secretary PLUMB. So, Congressman, I would say the word "strategic" ——

Mr. GARAMENDI. That was addressed to General Cotton.

General Cotton, you raised this issue. What is the answer?

General COTTON. What I am saying is strategic deterrence is not just nuclear. Strategic deterrence can also be through conventional means. We do it every day today.

Mr. GARAMENDI. Then why did you raise the question of the hypersonic being specifically in that arena?

General COTTON. I did not. I said it could actually complement in the nuclear ——

Mr. GARAMENDI. I will check the record. Enough of that.

We have got this issue of the SLCM [Submarine-Launched Cruise Missile], which is a strange name. The United States already deploys a low yield warhead, 76–2 on submarine-based missiles. And we have the B61–12 low yield. And we have the, will soon I suppose, or someday have an LSRO [Long Range Standoff Weapon] that is nuclear capable.

Why do we need a SLCM? Which one of you want to answer that? I guess Mr. Plumb.

Secretary PLUMB. Congressman, the Administration position is that we do not.

Mr. GARAMENDI. Well, the Congress thinks differently, unfortunately.

So, what does that mean for our nuclear submarines that are presently not necessarily stationed at ports where nuclear weapons are allowed? It changes everything, doesn't it, if we put this on our attack submarines?

Secretary PLUMB. Congressman, to be fair, I was a fast attack submariner. Fast attack submarines used to have nuclear cruise missiles on them. They were removed by presidential nuclear initiatives years ago just as I was entering the force.

So, I don't know if it would change everything. I guess I would argue that it would not. But it would certainly change some things.

Mr. GARAMENDI. What things?

Secretary PLUMB. Some nations are not keen on having nuclear weapons in their ports. So kind of from a port standpoint that is a problem from us.

Mr. GARAMENDI. And they wouldn't be able to use those, the submarines couldn't use Gordon and Norfolk, they would have to go to a different?

Secretary PLUMB. I wouldn't, I wouldn't be willing to say that, sir. But additional investments would be required if they were going to use the naval ports.

Mr. GARAMENDI. My time is expired. Thank you. I yield back.

Mr. LAMBORN. Mr. Wilson.

Mr. WILSON. Thank you very much, Chairman Doug Lamborn and Ranking Member Seth Moulton. Look forward to working with you and your leadership. And we have got a great team. And, truly, it is significantly bipartisan.

So, I am just grateful to be here. Now, it is really humbling, okay, to look out there. I have never seen this many stars, 24. And so, you have done a good job at the first meeting.

And but thank you for your service. And I truly appreciate your service. My dad served in the 14th Air Force Flying Tigers to liberate China, in Kunming, Jengdu, Xi'an, China. So, I appreciate that.

And then I am really grateful, General Dickinson, you beat me by 7 years in terms of the number of years' service. And so I appreciate that. Although I am grateful, my oldest son Allen is field artillery, received the CAB in his service in Iraq. So, I appreciate that branch.

And then I am all service behind you. My second son's a doctor in the Navy, and the third son is signal, and youngest an engineer, having served in Iraq, Egypt, and Afghanistan.

So, thank you for your service.

With that, General Cotton, the communities in South Carolina's 2nd District, and our adjacent communities in Georgia, are extremely supportive of the plutonium pit production mission at the Savannah River Site. The Savannah River Site, with its workforce and expertise is ideally suited to complete this important mission that is so vital to national security.

Maintaining active levels of funding for the Savannah River plutonium processing facility is necessary to ensure that our nation can reach our nuclear modernization needs and maintain an effective nuclear deterrent. In fact, Congressman Moulton was absolutely correct, we have got to have a real deterrent that the enemy understands that they are very effective.

As of February 2023, the National Nuclear Security Administration notified Congress that it would be unable to meet the congressionally mandated timelines to achieve a rate of 30 plutonium pits by 2026, or achieve the 80 pits per year Congress mandated by 2030.

The question, as the NNSA [National Nuclear Security Administration] will not be able to meet the requirements of producing 80 pits per year by 2030, how critical is it that we do everything we can to minimize the delay and reach the requirement as soon as we can?

General COTTON. Congressman Wilson, it is nice seeing you again, sir.

Bottom line, it is critically important. Eighty pits per year, the 2030 statutory requirement has not changed when it comes to delivery for us. We are working hand-in-hand with our partners in NNSA to understand how they will be able to achieve that. But it is, it is actually crucial and critical for us to make sure that they can get as close to meeting that requirement as they can.

Mr. WILSON. Well, I would like to assure you that the citizens of central South Carolina and CSRA into Georgia are ready to back this up in every way.

And, General VanHerck, a rising threat of China, acute threat of Russia, the unabated threat of Iran building intercontinental ballistic missiles, and an unstable North Korea with the capacity to deliver long-range missile threats, continue a great—to develop a greater capability and capacity, with the intent to strike the United States and our allies.

How concerned are you about the continued missile development and production?

Is NORAD preparing adequately to deter, detect, deny, and protect the homeland from threats?

General VANHERCK. Congressman, I am encouraged with recent funding for NORAD modernization. Specific to the ballistic missile threat, the basic ballistic missile threat from DPRK [Democratic People's Republic of Korea], I am confident today in my threat warning and attack assessment capabilities. And also to defend in my NORTHCOM hat against a limited attack.

I am very concerned by the numbers I see and the capacity out of DPRK today as far as the total numbers that they actually have produced and are capable of potentially launching at our homeland.

Mr. WILSON. Well, please keep us advised what we can do to reach and match the threat.

And, General Dickinson, with China continuing to strengthen its military space capabilities, if China were to conduct an illegal invasion of Taiwan, what would be the implications of these satellites? And would they be a threat to the United States?

General DICKINSON. Congressman, first of all, thank you for those kind remarks as you began your question period.

I would just tell you that space is global in nature, and so, in particular for us, the U.S. Space Command for the Department of Defense. So, any regional conflict, if you will, will depend upon space, and utilize space assets, both blue as well as China.

So, I think what we would see would be a use because we know China is leveraging space capabilities now. They have watched us

for many, many years, more than 20 years, and how, how space-based capabilities facilitate our global reach and our global ability to employ forces. So, I think we could see a similar thing with China.

Mr. WILSON. Thank each of you.

Thank you, Mr. Chairman.

Mr. LAMBORN. Representative Carbajal.

Mr. CARBAJAL. Thank you, Mr. Chair. And thank you to all the witnesses for being here.

General VanHerck, General Dickinson, thank you for your service to our country. Reminds me of that movie "A Few Good Men." We wanted you on that wall, and now you are leaving. But if General Cotton is any indication of the bench we have and the people that are ascending to the capacities that you will leave behind, I think we are in good hands.

Secretary Plumb, we just wrote Mr. Plumb instead of Dr. Plumb or Assistant Secretary. I think we need to correct that because we need to give you your due.

Again, thank you for being here.

General Dickinson, the space activity from the Department of Defense, the United States commercial sector as well as partners, allies, and competitors, is growing. And in the next few years a significant number of satellites are planned to be launched into orbit, particularly P–LEO.

As the launch industry continues to grow and other countries develop their own launch capabilities, it is reasonable to believe that there will be more traffic in space, not to mention debris. Will this increased traffic pose challenges to space domain awareness?

And is SPACECOM [United States Space Command] prepared for this?

General DICKINSON. Congressman, thanks for those words, kind words as we have started out.

I could tell you that, frankly, yes, that presents a challenge to us as we watch. And I think we might all agree that watching the commercial market around the world starts showing a lot of interesting space and wanting to be part of the space community, space-faring nations. We are watching it grow. We see it every day.

I will give you a statistic just to think about. In terms of when this Command stood up in 2019, we tracked about 25,000 pieces of debris, old satellites, new satellites in the space domain. Today we are up over 48,000.

So, you can see that, the growth that you mentioned earlier, and how that is creating a more congested domain. So, as we look at that there are two things I want to point out that we are working on right now.

One, as I mentioned earlier, my top priority is to increase space domain awareness. And how I do that is through commercial integration as well as bringing on non-traditional type assets that we haven't used before to look into the space domain specifically; air defense radars, missile defense radars around the world, both maritime as well as ground-based; leveraging the commercial market.

The other thing we are looking at very carefully is, you know, how we will do that transition with the Department of Commerce

for them to start doing the space traffic management functions that are required to do space domain awareness.

I think when you look at the size, as I described, of how much it is populated, how much it has grown in numbers, we are going to need the Department of Commerce to do that type of civil type of operations to account for the debris and things that are in orbit. So, that will allow me to use the assets that I have to do characterization of things that I need to look at that aren't necessarily just civil or pieces of debris.

So, in other words, I will have a better opportunity with the resources I have to do better characterization of the space domain.

Mr. CARBAJAL. Thank you.

General Dickinson, as the number of launches continues to grow, can you speak to how you envision the Space Force range of the future?

And do trained access-to-launch ranges meet your needs as the combat combatant—combatant commander responsible for space, particularly when it comes to responsive space capability?

And how can the Department further help ensure access to ranges?

General DICKINSON. Congressman, I think a robust launch infrastructure and responsive launch capabilities are absolutely essential to our assured use of space, which remains a top national security priority.

The launch stations themselves, launch facilities is critical to the tactical response of space. But I will tell you it is not just the only piece to it. It is "a" piece to it.

The other pieces are, you know, having more assets on orbit that can be looked at to provide capabilities. It is also what is on each of the satellites that go up and how quickly those can be actually deployed upon a rapid response launch type capability.

So, it is really kind of those three together. But the launch structure is absolutely critical to what we are going to do today and in the future.

Mr. CARBAJAL. Thank you.

Dr. Plumb and General Cotton, I have limited time now, but I am concerned by Russia's decision to suspend implementation of the New START Treaty. In your statement you note the "continued degradation of Russian conventional capabilities in Ukraine will likely increase Russia's reliance on its nuclear arsenal."

Can you speak to the role Russia's failures in Ukraine played in their decision to suspend New START?

And how important is it for us to maintain our commitment to the New START Treaty?

Secretary PLUMB. Thanks. Thanks, Congressman.

I will say I do think that the more Russia shows that its conventional forces are being degraded or not up to par, then they do rely more and more on nuclear weapons. I do think that is a hallmark of a conventionally weak state that has to, that you rely more on nuclear weapons as their conventional forces fail in the field or continue to be degraded, against Ukraine in this case.

I am not convinced, sir, that the problems Russia is facing in the field are directly related to the New START piece. There is a lot of political and narrative pieces inside the Russian Government, in-

side Putin's mind that may be more related to this. It is troubling nonetheless.

I will just say at the top of the meeting, if you—I forget who, but someone noted, maybe it was Congressman Lamborn—but they have stopped their, suspended their notifications. This is new. This has just happened in the last couple, really the last week. And so we can see what they are doing there. We are looking at this closely to understand what that means for us.

Mr. CARBAJAL. Thank you. I am out of time.

General Cotton, you are saved by the bell.

Mr. Chair, I yield back.

Mr. LAMBORN. Thank you.

Dr. DesJarlais.

Dr. DESJARLAIS. Thank you, Chairman.

I would like to join my colleagues in thanking General VanHerck and General Dickinson for your commitment and your contribution and service to our country. And don't worry, General Cotton, we appreciate you, too. You will get your day.

But it seems like we have too many hearings—and Mr. Plumb—we have too many hearings now where it seems like we are talking about how our adversaries are looking in the rearview mirror at us when it comes to hypersonic weapons or expansion and modernization of nuclear forces. And that is very concerning.

So, General Cotton, I wanted to let you for a minute, if you would, describe how delays in modernization programs impact your ability to field sufficient forces in the future?

And are there steps STRATCOM can take now to better hedge against the possibility that some programs do not deliver on time?

General COTTON. Congressman, thank you for the question.

First of all, what it shows us, and the ability of us being, having a triad shows that that strategic theory works. Because what a triad does, it allows me to be able to balance amongst the three legs.

Those three legs have to work together. Some folks try to talk about the triad and stovepipes. They are not stovepipes. So, the balancing of being able to understand. And what we are facing today is the legacy systems across the triad are all being modernized. That is a good thing.

But to your point, how do we balance as we make that transition, the other good news is the legacy systems are safe. They are secure. They are effective, and they are credible today.

So, we constantly look at all three legs to ensure that we can balance, to ensure that we can, you know, cover to your point and make sure we have an effective deterrent.

Dr. DESJARLAIS. Would you say if we stay on our current modernization trajectory will the President and the STRATCOM Commander, if it is not you, have the capabilities that we will need to deter both Russia and China if our intel on their modernization continues at the current pace, say, in 2030?

General COTTON. Sir, I think, I said it in an earlier statement, I think we probably need to have a conversation in regards to strategy as well as force posture to ensure that we can, that we can make sure we have what we need in regards to I would say probably the mid-2030s and beyond.

Now, the transition to our newer weapons systems are happening in the time frame that you just mention. And I think I can deliver, as long as we stay in alignment and produce and deliver the weapons systems, the new modernization systems as close to on time as we can.

Dr. DESJARLAIS. Okay. Shifting gears just a little bit, we had a conversation regarding non-strategic nuclear weapons. And how many non-strategic nuclear weapons does Russia have? And in what ways is their arsenal expanding and expected to expand?

General COTTON. Sir, I have to take that for the record to get you the exact number. But by definition, non-strategic nuclear weapons are anything that is not counted in New START.

Dr. DESJARLAIS. Okay. What is your assessment of Russia's motivation for investing so heavily in these non-strategic, low-yield nuclear weapons?

And do they detect a gap in our deterrence that they believe they can derive a military advantage from exploiting?

General COTTON. I think it is based on their strategic theories on the utilization that it is below threshold where they can actually utilize non-strategic nuclear weapons or tactical nuclear weapons.

Dr. DESJARLAIS. Okay. General VanHerck, I had a question for this morning on North Korea's missile capabilities. But we will address that in the next closed session.

So, with that, I will yield back.

Mr. LAMBORN. Okay. Now to one of our new members of the subcommittee, Representative Houlahan.

Ms. HOULAHAN. I am new to the subcommittee but not new to this. I served in the Air Force myself, and this is what I did when I was in the Air Force 30-something years ago. So, I am grateful to be here with you guys today.

My questions are for General Cotton, and for General Dickinson, and Dr. Plumb.

General VanHerck, we asked questions at the last meeting, so maybe we will skip that today, and maybe something in the classified session.

First for General Cotton, three days ago reports emerged that the PRC is increasing their defense budget by 7.2 percent next year. And we already know, as you said in your written testimony, that the PRC has rapidly increased their supply of both warheads and missiles, with the expectation that they will control about 1,000 warheads over the next decade.

So, as Commander of the Strategic Command, I guess having, you know, spent the next 30 years working in industry with KPIs [Key Performance Indicators] and learning to measure what matters, what matters to you?

How do you measure success with strategic deterrence? Is it the number of warheads? Is it the size, or is it the range, or is it comparison against our pacing threat? Or is it something else, as you mentioned, that is a balance of non-nuclear and other assets as well?

Do you believe that we have to outspend or have a larger missile supply than the PRC to maintain our effective levels of deterrence?

General COTTON. Congresswoman, thank you so much. And hooah at you. You are an Air Force veteran.

I think it is a little bit of all the above. And what I mean by that is the definition of strategic—no, excuse me—of deterrence from my perspective. For me, deterrence is about, first, understanding what the adversary values. And when you understand what the adversary values, ensuring the adversary understands that the action you impose, that imposition is so great that they will not risk what they value.

I think an incredible start for that in what we are doing right now with the modernization of our nuclear forces is a start to that.

I agree with you, I think adding different capabilities that we are talking about today from a strategic deterrence perspective is also something that needs to be added in that calculus.

Ms. HOULAHAN. Thank you. I appreciate your brevity in your answer so it allows me time to ask Dr. Plumb a question.

As we are rightfully focusing more of our time on space and improving our security and collaboration in space, we are running into some issues working with our allies due to the tendency that many of us have to overclassify space-related information. And Representative Moulton asked about this, too.

The fiscal year 2022 NDAA required that the Secretary would conduct a review of the classified programs under Space Force to determine whether any level of classification of the program could be changed to a lower level, or if the program could be declassified and reported back to us.

Dr. Plumb, my understanding is that report was due last April. Do you have any expectation of when we might be able to get that report?

Secretary PLUMB. Thanks, Congresswoman.

First, let me just say I have got three C's from my ASD space hat that I wear, all related to space. I am interested in space control. I am interested in space cooperation with allies, which you raised. And both of those are also contingent on kind of our tendency to over classify space.

It really does make it hard to share information with our allies. General Dickinson and I have been to New Zealand to talk about this with some of our closest allies, as a matter of fact.

I will say I am aware that the report was due then. It is actually a pretty Herculean task. The Deputy Secretary of Defense has started last year a SAP [Special Access Program] reform effort—it might have been even before that—which is coming to a, at least a new stage.

I don't think any of those things, I don't expect any of those things are going to become unclassified. But we are hoping to find ways to better share information with industry, just as an example, another partner we don't talk about as much.

Ms. HOULAHAN. Do we have an estimation on when that report would be due?

Secretary PLUMB. I don't have a great one for you. But I am hoping for later this year.

Ms. HOULAHAN. Well, I look forward to following up on that, with that.

And with my last half a minute, General Dickinson, you talked a little bit about sort of the implications about working with our

allies. And, Dr. Plumb, you talked a little bit about industry. But I am also thinking about the American people.

A lot of what has effectively been effective about Ukraine has been that release of information by the Administration and others that has been sanitized and is allowed to be advanced, you know, to the American public to help them understand space, and Space Force, and Space Command as one of those problems where people just don't understand its impact.

I know I have run out of town. But I would be interested, perhaps afterwards, in learning more from you about whether you think there is an appetite or an ability to have that information available to the American public in a more abundant way and a more sanitized way.

And I am sorry, and I yield back.

Mr. LAMBORN. Okay. And now we have another new member, although not new to this issue, just like Representative Houlahan is not new to this issue, and that is Representative Bacon.

Mr. BACON. I am glad to be on this committee. Thank you.

I want to welcome all four of you here today. We appreciate your leadership and what you do.

I want to welcome General VanHerck. General Dickinson, Omaha where you are retiring, you can join General Cotton who has been well-received and welcome there.

So, but congratulations to both. And we thank you.

I volunteered to be on the Strategic Forces Committee to focus on NC3 [nuclear command, control, and communication], as General Cotton knows. We are investing in the triad. I think we are on a great glidepath for success to modernize all three of those legs of the triad.

I am concerned about the survivability of our NC3. I know STRATCOM and our DoD has been working on the comm systems and the architectures. But the area that I am focused on is, or worried about is the survivability of command. With hypersonics, and cruise missiles, perhaps submarines off our coasts at some point again, it is harder to ensure that command authorities can survive a first strike and conduct a second counterstrike.

I want to have 100 percent confidence that the Russians and Chinese have 100 percent confidence that we can do a second strike, because that ensures deterrence. And that is ultimately what we are about. Job number one is strategic deterrence.

So, with that, General Cotton, can you share your thoughts on what parts of our deterrence, our alert, and our readiness posture that you are watching most closely, and what elements you believe may warrant more attention from us and more funding?

General COTTON. Congressman Bacon, thank you so much for the question. It is all of it.

You know, I look at our E6B fleet. I look at our E4B fleet. I look at the mission readiness of those fleets. I look at our submarine fleet as well as the ICBM leg and our bomber fleet, to include all of the bomber forces, not just those that are directly assigned, which is the B–52 and the B–2.

We carefully manage that, Congressman, to make sure that we are, that we are confident that we can do exactly what you are saying in regards to being able to disperse when we need to disperse,

and get to locations of safety when we need to get to locations of safety.

Mr. BACON. A lot of this is predicated on strategic warning. But I am an intel officer by trade, and historian. I love reading history. And more often than not, adversaries are caught flatfooted.

So I just, I want to ensure that we have a debate done every day that we have that survivability there.

A follow-up question with you, General Cotton, is how is our hosting Nuclear Enterprise Center at Offutt working to design the next generation NC3 architecture?

And how is that work informing DoD NC3 modernization?

General COTTON. Thank you for that question.

You know, as I took command on the 9th of December, one of the things that we did on the 12th of December was we created a cross-functional team within the Command to really get after how do we describe the incredible things that are going on within the NC3 portfolio, and describe it, to be frank, to the members of Congress and to my own bosses within the Department?

So, one of the things that we are doing is we are changing what we would call our OV1 strategy to describe what we are doing within the architecture. And I have directed our team to come out with what we would call a roadmap construct to better describe the dollars, and the investments, and everything that is happening within the enterprise.

It is still nascent, but we will be ready to present that to my bosses in the Pentagon, as well as to the members here shortly.

But there is a lot of work that is going on with the next gen NC3 implementation plan. And I look forward to being able to describe that to you.

Mr. BACON. I have a question for General Dickinson. But before I do, before my focus on NC3, I have been working on electronic warfare. I really appreciate the great work STRATCOM and the whole DoD is doing on it. It is an area that we have fallen behind on. So, I appreciate your focus on that as well as STRATCOM.

General Dickinson, while I have about 30 seconds left, can you explain a little more about the dynamic space operations and your requirements?

General DICKINSON. Thank you, Congressman.

So, dynamic space operations is the concept where we get to the point where we are not having to worry about consumables that might be on spacecraft. In other words, we need to be able to have dynamic space capabilities that don't—an operator or a warfighter can actually use that in the actual context or the tactics they want to employ, without having to worry about replenishment. Whether it is a battery drain, whether it is a fuel consumption, something along the lines where you can refuel, be able to have a replenishment of that capability so you can use it not only today but in the future. And then when you are actually doing operations, that you are not limited in what you can do because of that.

Mr. LAMBORN. Thank you. And for everyone's situational awareness, I have asked Joint Staff, OSD, and STRATCOM to put together a classified NC3 brief for members. So, be looking for a notice coming soon.

I was going to ask Representative Norcross. He wants to defer. So, Representative Strong, you are next.

Mr. STRONG. Thank you, Mr. Chairman.

It is an honor when I get to see a panel of generals who spend a lot of time in my hometown of Huntsville, Alabama, at Redstone Arsenal, where I served 26 years on the Madison County Commission, the last 10 as the chairman.

General Dickinson, Redstone Arsenal and the surrounding community was sorry to see you leave SMDC [Space and Missile Defense Command] in 2019. We are proud of everything you have done for the U.S. Space Command.

Your successor, General Dan Karbler, has done a fantastic job as well. And I know General Cotton will agree.

General Cotton, thank you for taking time from your schedule to come by my office last week and give me a brief. In our discussion you stressed the importance of guaranteeing the U.S. strategic forces are safe, secure, effective, and credible. This applies to the three legs of the nuclear triad and nuclear command, control, and communications.

Can you briefly summarize what Strategic Command is doing to ensure that all ongoing modernization efforts and our strategic forces and capabilities are safe, secure, effective, and credible?

General COTTON. Congressman Strong, thank you so much. And I had a great opportunity, it was a great time talking with you last week.

You know, there is nothing more sacred than ensuring that we have a safe, secure, and effective, and credible nuclear deterrent, just because of the weapons systems effort described in themselves. When we talk about the men and women that are working those systems each and every day, and the training and readiness that goes in ensuring that they are ready to do their job, that is paramount for us.

So, I oversee the service components that have that mission set every day to ensure that they are properly trained, they are properly equipped, and have the means to be able to deliver effects when they are required to do so.

Mr. STRONG. Thank you, General.

Dr. Plumb, as you know, my hometown of Rocket City, USA, Huntsville, Alabama, is a haven for traditional defense contractors and commercial industry alike. As the Department of Defense continues to increase its reliance on commercial partners in space I have two questions:

One, what is the DoD doing to ensure there is no foreign adversary influence on commercial partners and their dual-use service or technology?

Two, what authorities does the DoD have to safely integrate commercial partners into current architectures and information sharing?

Secretary PLUMB. Thank you, Congressman.

So, a two-part question. So, first, I think if I have you right you are asking about supply chain.

Mr. STRONG. That is right.

Secretary PLUMB. So, obviously, or if not obviously, let me just stress how important supply chain integrity is to the Department

of Defense for any, really any capability, but certainly any high-end capability, and that is a thing that the Department takes seriously and works on every day.

Your second question is authorities that I think I am integrating commercial into. So, it is a good question. I think I am not aware of any authority limitations. I think it is very clear to those of us at the table, and anyone working on space at the industry, right, commercial providers are moving at a pace that is probably rapid and the Department of Defense said that they can move at. So, we are trying to harness that and see how we can use that to our advantage.

We are looking at different ways we can use commercial space. There are some missions that are probably almost completely could be filled by commercial, and there are some that are very unique to DoD. I will just say I think the general approach going forward, and I am not the acquisition authority here, sir, is that we should buy what we can and build what we have to.

Mr. STRONG. Thank you, Dr. Plumb.

General Dickinson, I have heard a lot of talk about dynamic space operations and maneuvering satellites without regret. Can you explain on what your requirements are for this and how it intersects with ensuring robust and redundant situational awareness capabilities?

General DICKINSON. Thank you, Congressman. And good to see you. Thanks for those kind words.

I would say for dynamic space operations we are still looking at crafting our requirements, drafting our requirements, what that really means, and being able to describe that. But in essence, as I mentioned earlier, it is being able to maneuver on orbit in any manner that we need to given the situation, and not be constrained by fuel, electricity, batteries, whatever the consumables might be on that particular spacecraft or that particular capability.

So, like in other domains where you are able to refuel trucks, and tanks, and aircraft, we need to be able to do the same thing in space.

Mr. STRONG. Thank you.

I thank each of you for being here. I yield my time.

Mr. LAMBORN. Representative Norcross.

Mr. NORCROSS. I'll ask in the classified.

Mr. LAMBORN. In a moment we are about to recess and go up to 2337 for the conclusion of this hearing in a classified setting

I have one quick follow-up on something you said, General Dickinson, earlier.

You talked about achieving initial operating capability at your provisional headquarters at Peterson Space Force Base. I know that reaching full operational capability is a high priority, but there have been complications regarding Space Command's permanent headquarters and where it will be located.

Can you talk about the readiness challenges you face should those headquarters be moved from Colorado Springs, and the additional time that would be involved?

General DICKINSON. Chairman, I did say I reached IOC, initial operational capability, a couple years ago. And we are on the glidepath right now, moving aggressively towards full operational capa-

bility in the provisional headquarters and the infrastructure that I have in Colorado Springs right now.

To me it is all about readiness. It is all about being able to do the mission sets that I have been given by the President of the United States. And so, as we move with resourcing the both infrastructure as well as people, which are the most important part of the command, we are moving in that direction.

Mr. LAMBORN. All right, thank you.

We will now go into recess and reconvene in a few moments in 2337.

[Whereupon, at 4:29 p.m., the subcommittee was adjourned.]

A P P E N D I X

MARCH 8, 2023

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 8, 2023

STATEMENT OF

DR. JOHN F. PLUMB

ASSISTANT SECRETARY OF DEFENSE FOR SPACE POLICY

BEFORE THE HOUSE ARMED SERVICES COMMITTEE

SUBCOMMITTEE ON STRATEGIC FORCES

ON FISCAL YEAR 2024 STRATEGIC FORCES POSTURE

MARCH 8, 2023

Introduction

Chairman Lamborn, Ranking Member Moulton, and distinguished members of the Committee: Thank you for inviting me to testify before you on the Department's nuclear, missile defense, and space posture. I am honored to appear alongside Generals Cotton, Dickinson, and VanHerck, and I look forward to answering your questions.

Today, the United States finds itself in a highly dynamic and challenging security environment characterized by intensifying strategic competition, assertive behavior by multiple competitors, rapidly evolving domains of conflict, shifting balances of power, and, as a result, a growing risk of military confrontation. Our competitors have placed nuclear weapons, space warfare, and long-range strike at the center of their strategies to coerce and fight the United States and its allies and partners. They are investing heavily in nuclear weapons that can threaten U.S. forces and territory and our allies and partners. Our competitors seek to create a future operating environment in which they can leverage space and strike capabilities to hold at risk our forces, ports, and airfields, and to deny U.S. freedom of maneuver. As recent events make clear, our competitors are developing a range of capabilities to reach the U.S. homeland, ranging from high-altitude balloons for intelligence collection to nuclear-armed hypersonic weapons. Nuclear, space, and missile capabilities also underwrite ongoing efforts by U.S. competitors to gain advantage in "gray zone" competition, undercut U.S. leadership, and reshape global norms to their advantage. Nowhere has this been more evident than in Russia's ongoing, brutal aggression war against Ukraine.

In October 2022, the Department of Defense released unclassified versions of the National Defense Strategy (NDS), the Nuclear Posture Review (NPR), and the Missile Defense Review (MDR). For the first time in its history, the Department conducted all major strategic

reviews in an integrated way, aligned with the President's National Security Strategy (NSS). Together, these strategic documents recognized that the United States is entering a period of heightened risk and articulated an urgent imperative to strengthen deterrence. In support of this aim, the NDS outlined a strategy of integrated deterrence, which provides a framework for working seamlessly across domains, theaters, and the spectrum of conflict, as well as across all instruments of U.S. power and with allies and partners.

Nuclear weapons, space capabilities, and missile defense are all essential to integrated deterrence. The Department's efforts in these areas undergird all four priorities in the NDS: (1) defending the homeland; (2) deterring strategic attacks; (3) deterring aggression while preparing to prevail in conflict; and (4) building a resilient Joint Force and defense ecosystem that can sustain U.S. strategic advantage. To ensure we will meet the challenge of the deteriorating security environment, the Department is committed to investing in nuclear triad modernization, homeland and regional missile defense, and a more resilient space architecture. These investments, which will be detailed upon the release of the President's Fiscal Year 2024 Budget Request, are necessary to deter conflict and to prevail in conflict should deterrence fail.

Security Environment

People's Republic of China

The People's Republic of China (PRC) is engaged in a significant and fast-paced expansion, modernization, and diversification of its nuclear forces, which has resulted in the establishment of a nascent nuclear triad. If the PRC continues the current pace of its nuclear force expansion, it could field an arsenal of about 1,500 warheads by 2035. The PRC's

intercontinental-range forces are complemented by several theater-range road-mobile ballistic missile systems, and it is developing advanced nuclear delivery systems such as a strategic hypersonic glide vehicle. The PRC is increasing the peacetime readiness of its forces by moving to a launch-on-warning posture. While the end state of the PRC's nuclear force expansion remains uncertain, the trajectory of these efforts points to a large, diverse nuclear arsenal with a high degree of survivability, reliability, and effectiveness, and ever-evolving opaque doctrine. This could provide the PRC with new options before and during a crisis or conflict to leverage nuclear weapons for coercive purposes, including military provocations against U.S. allies and partners in the region. By the 2030s, the United States will, for the first time, face two major nuclear powers as strategic competitors and potential adversaries.

The PRC reorganized its military in 2015 to more effectively approach space as a warfighting domain, and it is building a space architecture to enhance its ability to fight and win a modern military conflict. The People's Liberation Army (PLA) owns and operates roughly half of the world's intelligence, surveillance, and reconnaissance (ISR) systems. Recent improvements to the PLA's ISR fleet enhance its ability to monitor forces across the globe, including U.S. aircraft carriers, expeditionary strike groups, and deployed air wings. This makes U.S. and allied forces more susceptible to long-range strike and ultimately challenges our ability to conduct joint operations, particularly in the Indo-Pacific region.

The PRC views counterspace systems as a means to deter and counter outside intervention during a regional conflict. It has developed several capabilities intended to target U.S. and allied satellites, including ground-based laser systems that can disrupt, degrade, and destroy satellite sensors and direct-ascent anti-satellite (DA-ASAT) missiles that can target satellites in low Earth orbit (LEO). The PRC has also launched multiple experimental satellites

to research space maintenance and debris cleanup. These experimental capabilities include robotic arm technology, which could be used for grappling other satellites, as evidenced last year when the Shijian-21 moved a derelict satellite to a graveyard orbit above GEO. The PRC continues to seek new methods to hold our satellites at risk, which could include DA-ASAT weapons able to destroy satellites up to geosynchronous Earth orbit (GEO) and space-based kinetic energy weapons.

While the PRC develops and fields these counterspace weapons, it simultaneously, promotes false claims it will not place weapons in space, and, along with Russia, has proposed a flawed legally-binding treaty on the non-weaponization of space at the United Nations.

The PRC has dramatically advanced its development of conventional and nuclear-armed ballistic and hypersonic missile technologies and capabilities through intense and focused investment, development, testing, and deployments. In 2021, the PLA Rocket Force (PLARF) launched approximately 135 ballistic missiles for testing and training. This was more than the rest of the world combined, excluding ballistic missile employment in conflict zones. In 2021, the PRC continued building three solid-fueled intercontinental ballistic missile (ICBM) silo fields, which will cumulatively contain at least 300 new ICBM silos. China's deployment of the DF-17 hypersonic glide vehicle (HGV)-armed Medium-Range Ballistic Missile (MRBM) will continue to transform the PLA's missile force. Additionally, the PRC has a robust and redundant integrated air defense system (IADS) architecture over land areas and within 300 nautical miles (345 miles) of its coast that relies on an extensive early warning radar network, fighter aircraft, and a variety of Surface-to-Air Missile (SAM) systems.

Russia

Russia continues to emphasize nuclear weapons in its strategy while modernizing and expanding its nuclear forces. Russia's nuclear saber-rattling, displayed throughout its unprovoked and indefensible full-scale invasion of Ukraine, is irresponsible and troubling. Russia is steadily expanding and diversifying nuclear systems that pose a direct threat to NATO and neighboring countries. In addition to New START Treaty-accountable systems, Russia maintains a sizable stockpile of warheads that are not treaty-limited. It continues to pursue several novel nuclear-capable systems designed to hold the U.S. homeland or Allies and partners at risk, some of which are also not accountable under the New START Treaty. While Russia has not withdrawn from the New START Treaty, its purported suspension of Russia's participation in the New START Treaty is troubling.

Russia reorganized its military in 2015 to create a separate space force because Russia sees achieving supremacy in space as a decisive factor in winning conflicts. Russia has a smaller fleet of satellites than China, though it operates some of the world's most capable individual ISR satellites for optical imagery, radar imagery, SIGINT, and missile warning. Russia has integrated its space services into its military, though Russia wants to avoid becoming overly dependent on space for defense because Russia expects the United States to seek to deny Russia access to its space-based capabilities.

Russia is developing, testing, and fielding a suite of nondestructive and destructive counterspace systems to degrade or deny U.S. space-based services as a means of offsetting a perceived U.S. military advantage and deterring the United States from entering a regional conflict. These systems include jamming and cyberspace capabilities, directed energy weapons, on-orbit capabilities, and ground-based DA-ASAT missile capabilities. In November 2021,

Russia tested its DA-ASAT missile, creating over 1,500 pieces of trackable space debris and tens of thousands of pieces of potentially lethal but non-trackable debris. The resulting debris threatens spacecraft of all nations in LEO, including astronauts and cosmonauts on the International Space Station and taikonauts on China's Tiangong space station. Like China, Russia develops and fields counterspace capabilities, while publicly promoting a flawed, legally-binding treaty on the non-weaponization of space at the United Nations.

Russia has used thousands of air, land, and sea-launched cruise and ballistic missiles, including hypersonic missiles against Ukraine mainly as weapons of terror against, striking vulnerable civilian (non-military) targets, including schools, hospitals, and critical infrastructure. Battlefield usage has reduced Russia's weapons inventories and export controls are hindering its ability to effectively produce modern precision-guided munitions but Russia continues to strike civilian targets in Ukraine. Russia has retained and upgraded its own missile defense system designed to protect Moscow against a U.S. strike, and it has developed several lower-tier air defense systems for its own use and export.

Democratic People's Republic of Korea (DPRK)

The DPRK presents significant and growing deterrence dilemmas for the United States and its allies and partners. The ongoing expansion, diversification, and improvement of the DPRK's nuclear and ballistic missile capabilities presents a growing danger to the U.S. homeland and the Indo-Pacific. A crisis or conflict on the Korean Peninsula could involve multiple nuclear powers, raising the risk of a broader conflict. The DPRK has ambitions to develop its space program and has placed two satellites in orbit. Under the guise of peaceful use

of space, the DPRK applied data from its space program to aid in the development of long-range and multistage ballistic missiles as well as counterspace capabilities, including GPS and SATCOM jamming.

The DPRK continues to improve, expand, and diversify its conventional and nuclear missile capabilities, posing an increasing risk to the U.S. homeland and to U.S. forces, allies, and partners in theater. The DPRK recently displayed new, larger ICBMs during a military parade, conducted an ICBM test in February, and conducted a variety of missile tests over the last year including what it claims are hypersonic missiles.

Iran

Iran does not today possess a nuclear weapon and we currently believe it is not pursuing one. However, Iran's pursuit of nuclear activities that were previously constrained by the Joint Comprehensive Plan of Action (JCPOA) continues to be of deep concern. Iran continues to pursue a space program, which could shorten the pathway to a future long-range missile capability. Iran maintains the largest regional missile force in the Middle East and possesses a growing Unmanned Aircraft System (UAS) capability, which it has provided to Russia for use in Ukraine against critical infrastructure. Iranian technologies are used by its proxies to conduct attacks throughout the Middle East.

Nuclear Strategy and Posture

Nuclear weapons underpin all of our NDS priorities and backstop every action that the Department takes to safeguard U.S. interests. The United States is resolute in its commitment to

deter and defend against attacks on its vital interests as well as those of our allies and partners. Nuclear weapons play a crucial role in safeguarding these commitments alongside the other elements of U.S. military and national power. The 2022 NPR, which was delivered to Congress in a classified form last March and released to the public in an unclassified form last October, adopts a comprehensive and balanced approach. It reaffirms the need to maintain a safe, secure, and effective nuclear deterrent, as well as a strong and credible extended deterrent, while also recognizing our continued obligation to identify practical steps to reduce the role of nuclear weapons in our strategy and, by extension, the risk of nuclear war globally.

Although the fundamental role of U.S. nuclear weapons is to deter nuclear attack, nuclear weapons contribute to deterrence of all forms of strategic attack; assurance of Allies and partners; and the ability to achieve Presidential objectives if deterrence fails. Strategic attack in this respect includes nuclear employment of any scale as well as high consequence attacks of a strategic nature using non-nuclear means. While retaining a very high bar for U.S. nuclear employment, this approach complicates adversary decision making and reflects a sensible and stabilizing approach to deterring a range of attacks in a dynamic security environment.

The Department is acting along several lines of effort consistent with key findings of the NPR. These include modernizing our deterrent; refining the Department's approach to the challenge of facing two major nuclear powers; examining ways across all domains to address hard and deeply buried targets; strengthening extended deterrence; and exploring arms control and risk reduction initiatives where possible.

As reflected in the President's forthcoming budget request for Fiscal Year 2024, the administration is committed to full-scope modernization of all three legs of the triad as well as those nuclear capabilities that support regional deterrence. This includes full funding of the

SENTINEL ICBM; the COLUMBIA-class submarine (SSBN); the B-21 RAIDER strategic bomber; and the long-range standoff cruise missile. The Department will continue nuclear certification of the F-35A aircraft; fielding of the B61-12 nuclear gravity bomb; and retention of the W76-2 low-yield ballistic missile warhead. The Department will also work to modernize our nuclear command, control, and communications architecture to ensure its effectiveness and resilience in an evolving security environment.

A credible and effective deterrent also requires a modern nuclear enterprise. The Department will continue to work with the Department of Energy's National Nuclear Security Administration in its efforts to life-extend and modernize nuclear weapons and the infrastructure required to design, certify, and manufacture nuclear weapons. This partnership supports the NDS guidance to build enduring advantages across the defense ecosystem by modernizing the systems that design and build the Joint Force and making these systems more resilient and agile in the face of a diverse range of threats. Succeeding in these monumental, generational efforts will require sustained effort, investment, and attention, and we appreciate the support that Congress has provided to these programs.

The Department is refining its approach to the challenge posed by the PRC's nuclear weapons modernization and expansion, which presents the United States with the unprecedented challenge of having to deter two major nuclear powers simultaneously. We must prepare for a potential future in which Russia continues to maintain large numbers of warheads on strategic, non-strategic and novel systems, while China continues to expand and modernize its arsenal without constraints.

We are confident that currently deployed U.S. nuclear forces are sufficient to deter and, if necessary, respond to any threats we face today and in the coming years. While the United States

does not need to maintain numerical parity with both nuclear powers combined to achieve its deterrence and other objectives, we are continuously reevaluating the security environment and it may become necessary in the future to consider nuclear strategy and force adjustments to ensure our ability to deter.

Non-nuclear capabilities are also essential to deterrence, and a key priority for NDS and NPR implementation is to better synchronize nuclear and non-nuclear planning, exercises, and operations. As an example of this approach, the Department is actively studying the problem of how to hold at risk hard and deeply buried targets by leveraging existing capabilities and taking an all-domain approach to developing an enduring solution to this problem set.

It has long been clear that any adversary use of nuclear weapons would fundamentally alter the nature of a conflict. We must therefore be able to deter both large-scale and limited nuclear attacks. The capability to deter limited nuclear attacks is critical given that some competitors have developed strategies for warfare that may rely on the threat or actual employment of nuclear weapons to terminate a conflict on advantageous terms. Some allies and partners are also particularly vulnerable to attacks with non-nuclear means that could produce devastating effects.

Allies and Partners

Cooperation with our allies and partners is central to U.S. nuclear strategy. The Department is committed to actively pursuing new ways to enhance our extended deterrence commitments, including by fielding flexible nuclear forces suited to deterring regional nuclear conflict, identifying pragmatic steps to strengthen deterrence consultations, and exploring

opportunities for multilateral and trilateral dialogue, exercises, and other activities. Secretary of Defense Austin and Secretary of State Blinken recently hosted the Japanese Ministers of Foreign Affairs and Defense in Washington where they discussed extended deterrence in the Indo-Pacific region. Just last month, the Department of Defense hosted a bilateral U.S.-Republic of Korea table-top exercise focused on the implications of potential DPRK nuclear employment. Following this exercise, the U.S. and Republic of Korea delegations visited U.S. nuclear submarine training facilities at Naval Submarine Base Kings Bay in Georgia.

In Europe, the United States and our NATO allies have stood united against Russian's brutal aggression in Ukraine and reckless nuclear rhetoric. The United States will uphold its commitment under NATO's 2022 Strategic Concept to take all necessary steps to "ensure NATO's nuclear mission remains credible, effective, safe, and secure." This includes modernizing NATO's dual capable aircraft mission, which is now transitioning to fifth-generation aircraft and updated B61-12 nuclear gravity bombs. We are also working to achieve the broadest possible burden-sharing by Allies in NATO's nuclear mission.

Arms Control and Nonproliferation

Deterrence alone will not reduce nuclear dangers. The United States supports a comprehensive and balanced approach that places a renewed emphasis on arms control, nonproliferation and risk reduction to strengthen stability, heads off costly arms races, and signals our desire to reduce the salience of nuclear weapons globally. We pursue these goals with a full understanding that progress requires reliable partners prepared to engage responsibly and on the basis of reciprocity. The Department is committed to seeking mutual and verifiable

nuclear arms control and non-proliferation measures when they can increase our national security interests. However, we cannot ignore the PRC's and Russia's expansions of their nuclear arsenals. Nor can we ignore Russia's unprovoked and unjust aggression against Ukraine, its noncompliance with provisions of the New START Treaty, and its recent announcement of a purported suspension of its treaty obligations. Russia's non-compliance underscores the looming challenges of a world in which the United States confronts two nuclear peer competitors simultaneously. Any future nuclear arms control framework with Russia must also account for the PRC's nuclear expansion. We will continue to seek opportunities to increase transparency and predictability. Developments in the security environment make arms control and nonproliferation efforts both more challenging and more pressing to pursue.

Space Strategy and Posture

Space is essential to U.S. national security and to the U.S. economy. Space-based services are often unnoticed, yet provide integral support to modern life, including the world's financial system, scientific discoveries, and environmental monitoring. Every American uses space every single day.

For the Department of Defense, all U.S. military service force structures are built assuming continued access to space. Space provides our military with indications and warnings of threats or attacks, command and control of our forces across the globe, and monitoring of adversary activities.

The growing importance of space is reflected in the NDS, which highlights how space, along with cyber, empowers the Joint Force. Each of the four NDS priorities requires and relies

on the ability of the United States to operate in space, both in peacetime and during conflict. Space is therefore a key node for integrated deterrence: deterrence strategies rely on combat credible forces, which are underwritten by space.

Our adversaries have seen more than two decades of U.S. military successes enabled by space capabilities. They seek to deny our ability to leverage space, and are developing a range of capabilities to do so. Addressing these threats requires mission assurance of our space capabilities. The foundation of mission assurance is resilience—being able to provide critical space-based services across the Joint Force in competition, crisis, and conflict. Resilience is also the primary way to deny adversaries the benefit of attack. The nascent resilient Missile Warning/Missile Tracking architecture is a good example of the Space Force's pivot to a series of resilient-by-design architectures that will assure the mission while being both more survivable and more capable. This tracking layer will improve U.S. all-domain awareness globally to increase our warning, tracking, and attribution capabilities, especially as it relates to threats like hypersonic glide vehicles. Systems like these will address emerging threats, expand our warning time and senior leader decision space, and enhance our missile defeat capabilities to negate these threats.

The NDS also highlights the importance of partnering with the commercial sector as part of our integrated deterrence efforts. The Department is assessing how we increasingly leverage commercial space services as one element of our broader approach to building resilience. Commercial services and providers offer innovative solutions across many mission areas at potentially lower cost and with more rapid development cycles.

Even as the Department builds resilience in space as a means to deter aggression, we must also be prepared to defend U.S. interests from the growing scope and scale of counterpace

threats. Consistent with our long-standing policy, the Department will protect and defend U.S. space capabilities, along with those of our allies, partners, and the commercial sector when directed to do so. As in other domains, the Department will leverage a breadth of options across all operational domains to deter aggression and, if deterrence fails, to prevail in conflict. This Committee's support is essential to our ability to defend our systems against counterspace threats and protect the U.S. Joint Force from adversary hostile use of space.

Our allies and partners are also key to our mission assurance, and they provide an enduring strength and asymmetric advantage that our competitors cannot match. They are essential to our integrated deterrence strategy. We therefore must be able to integrate, plan, and operate with our most capable allies in the space domain. Combined operations require us to be able to effectively share information. The Department is reviewing the classification and disclosure policies of space-related information to overcome barriers to integration with our allies and partners.

One example of how we are strengthening military-to-military ties to our allies is through the Combined Space Operations (CSpO) Initiative, which includes defense leaders from Australia, Canada, France, Germany, New Zealand, the United Kingdom, and the United States. In this forum, we are identifying ways to improve cooperation, coordination, and interoperability to sustain freedom of action in space, optimize resources, enhance mission assurance, and prevent conflict. During last December's Principals Board meeting, leaders emphasized the need to continue to increase information sharing to enable space operations and collaboratively address challenges to the safety and security of the domain.

Upholding and strengthening the rules-based international order, promoting the implementation of existing measures, and leading in the development of new responsible

behaviors that contribute to the safety, stability, security, and long-term sustainability of space activities. Because the Department is one of the primary space operators for the United States Government, we play a significant role in the United States' observation and demonstration of responsible space behaviors. The Department's policies and practices, such as the Secretary of Defense's Tenets of Responsible Behavior in Space issued in 2021, serve as a key element for U.S. proposals for international measures that contribute to the safety, stability, security, and long-term sustainability of space activities. Our operational expertise also allows us to participate in United Nations' space-related committees as part of State Department-led delegations.

Most recently, the Department assisted in developing the commitment announced by the Vice President in April 2022 not to conduct destructive DA-ASAT missile testing and establish this as a new international norm for responsible behavior in space, which ultimately led to a December 2022 vote at the United Nations General Assembly giving overwhelming approval of a U.S.-sponsored resolution calling upon all States to commit not to conduct destructive DA-ASAT missile tests. One hundred and fifty-five countries voted in favor, with nine opposing, including the PRC and Russia. The Department continues to engage with allies and partners to urge the widespread adoption of this commitment. This approach to developing nonbinding norms of responsible behavior that garner broad support can directly support the long-term sustainability of the outer space environment. The Department will continue to demonstrate leadership in both the responsible use of space and stewardship of the space environment.

Missile Defense Strategy and Posture

The 2022 Missile Defense Review (MDR) establishes the strategic policy framework and basis for addressing adversaries that seek to use offensive missiles and UAS to project

conventional and nuclear military power, making Integrated Air and Missile Defense (IAMD) an essential "deterrence by denial" component within integrated deterrence, a theme underpinning the NDS.

Within the integrated deterrence framework, missile defense weaves together all instruments of national power across warfighting domains, geographic theaters, the spectrum of conflict, and our global network of alliances and partnerships. More specifically, missile defense provides resilience to our deterrence and defense posture; complicates adversary attack planning and reduces an adversary's confidence of success; raises the deterrence threshold for potential conflict; offer assurances to our allies and partners that the United States stands behind its global security commitments; and provides defensive military options that may be less escalatory than employing offensive systems.

Implementation of the 2022 MDR is an ongoing effort that actively takes place through the Department's existing requirements, budgeting, programs, operational planning, and other processes.

One line of effort on our homeland missile defense that I would like to highlight is the Department's commitment to strengthen the defense of Guam through a layered IAMD architecture. As stated in the 2022 MDR, Guam is a part of the United States homeland and any missile attack against it or any other U.S. territory would be met with an appropriate response. As such, the Department requested $892M in FY23 for this purpose. The Department is also in the process of designating, as required by statute, a single senior official to manage the missile defense effort on Guam. We appreciate Congress's strong support for this important effort as we face growing threats in the Indo-Pacific region from an array of sources.

The Department is committed to pursuing defenses for U.S. forces, along with allies and partners, against all regional missile threats from any source to maintain a credible level of defensive capability. A core aspect of this effort includes developing active and passive defenses against regional hypersonic missile threats; and pursuing a persistent and resilient sensor network to characterize and track all hypersonic threats, improve attribution, and enable engagement.

The Department is also investing in our capacity to sustain extended conflicts. This is most evident in Ukraine where, without missile defense, Russia would have likely achieved air dominance and possibly achieved many of its original objectives months ago. That is why air and missile defense remains Ukraine's top priority. To this end, Secretary of Defense Austin and 54 allies and partners in the Ukraine Defense Contact Group met in mid-February in Brussels to identify options to support Ukraine in its fight back against the Russian onslaught, including through the provision of air defense systems and munitions such as PATRIOT and NASAMs, tens of thousands of artillery shells, dozens of tanks, hundreds of armored vehicles, and many other items.

Looking to the future, the Department sees a growing nexus between our national security space activities and missile defense. Missile defenses perform best when intercept systems receive timely and actionable missile warning, tracking, and discrimination data from sensors in space and on earth. These same sensors can also make valuable contributions to space domain awareness. Given the rapid expansion and evolution of both the missile and counter-space threats, the Department sees the need to add more resilience and capability in space through new proliferated satellite architectures for missile warning and tracking. The Department is expanding the capabilities and capacities of both our space and ground-based sensors networks

to perform existing and new missions to increase our ability to warn, track, and attribute both missile threats and strategic competitors' activities in space.

The Department is also broadening investments in missile defeat, an all-inclusive term for employing the capabilities to reduce the threat of missile attack, in all domains and along all timelines, both before and after launch. This is a full-spectrum approach that incorporates measures ranging from disrupting production capabilities by limiting and denying access to critical technologies all the way to strike options for eliminating follow-on missile attacks. Kinetic and non-kinetic options—as well as active and passive defense and non-traditional solutions such as cyber, electronic warfare, and offensive strike—are all part of this mix.

Let me underscore a point that permeates the NDS and is central to the MDR: the United States' unrivaled network of alliances and partnerships protects and advances our interests around the world and is the envy of our strategic competitors.

U.S. forces and the forces of our allies and partners are working to improve our ability to share sensing and tracking data in real time and support each other in air and missile defense engagements to maximize our collective capabilities. Multilateral air and missile defense exercises gives us opportunities to work together to accomplish these goals.

Missile defense cooperation with our allies and partners is growing rapidly in response to the changed security environment. The Department fully supports these efforts not only because allied and partner missile defense capability offers so much value in peacetime, but because it allows us to plan collectively and to counter missile threats together in crisis and conflict and in ways that reduce the potential for escalation.

Conclusion

I will conclude by emphasizing that U.S. strategic capabilities—nuclear, space, and missile defense systems—are central to our ability to deter our competitors. In recognition of the evolving threats around us, this administration will continue to make critical investments in these capabilities to enhance deterrence and ensure our ability to prevail in conflict should that fail. Thank you to the Committee for its tireless dedication to the Department and our servicemembers, and I look forward to answering your questions.

Dr. John F. Plumb
Assistant Secretary of Defense for Space Policy

Dr. John F. Plumb was confirmed in March 2022 as the first Assistant Secretary of Defense for Space Policy. In this role he is responsible for the overall supervision of policy for the Department of Defense for space warfighting. His policy portfolio encompasses the Department's strategic capabilities for integrated deterrence: space, nuclear weapons, cyber, missile defense, electromagnetic warfare, and countering weapons of mass destruction. He also serves as the Principal Cyber Advisor to the Secretary of Defense.

Dr. Plumb has served in various national security roles both in and out of uniform for nearly three decades. As an active duty US Navy submarine officer, he served on a fast attack Los Angeles- class submarine and as an instructor at the Navy's nuclear power school. He then transitioned to the Navy reserves, commanding eight different reserve units over 20 years. As a civilian he held previous roles in the Senate, the Pentagon, and on the National Security Council staff at the White House. Prior to his confirmation he spent several years working for Federally Funded Research and Development Centers, first as a Senior Engineer at the Rand Corporation, and then as Principal Director, Chief of Government Relations for the Aerospace Corporation.

He holds a B.S. in Physics from the University of Notre Dame, and an M.S. in Physics and Ph.D. in Aerospace Engineering from the University of Colorado. His academic awards include the University of Notre Dame Student Leadership Award and an American Association for the Advancement of Science (AAAS) Congressional Science & Technology Fellowship sponsored by the Institute of Navigation. His personal military decorations include the Legion of Merit, the Meritorious Service Medal, and the Navy Commendation Medal. His civil service awards include the Office of the Secretary of Defense Exceptional Public Service Award, the Department of State Superior Honor Award, and the Secretary of Energy Achievement Award.

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STATEMENT OF

GENERAL GLEN D. VANHERCK, UNITED STATES AIR FORCE

COMMANDER

UNITED STATES NORTHERN COMMAND

AND

NORTH AMERICAN AEROSPACE DEFENSE COMMAND

BEFORE THE HOUSE ARMED SERVICES COMMITTEE

SUBCOMMITTEE ON STRATEGIC FORCES

DELIVERY DATE 8 MARCH 2023

Chairman Lamborn, Ranking Member Moulton, and distinguished members of the Subcommittee: thank you for the opportunity to testify, and for the honor of representing the men and women of U.S. Northern Command (USNORTHCOM) and North American Aerospace Defense Command (NORAD). From the day I assumed Command in August 2020, USNORTHCOM and NORAD have worked tirelessly to defend the homeland and North America in an extraordinarily challenging strategic environment requiring the commands to adapt new approaches to how we plan, prepare, and operate. That innovation and evolution is necessary to outpace our competitors and is a testament to the devotion of our military and civilian personnel who stand constant watch over the United States and Canada.

The commands have made tremendous progress in a short time, yet much work remains. While the United States military remains the most powerful and professional force in history, and our alliances and partnerships provide a vital strategic advantage over any potential adversary, it is clear that our competitive advantage is eroding. The successful defense of North America requires the Department of Defense to move beyond outdated assumptions and plans that do not fully reflect competitor capability, capacity, and intent to threaten the homeland. Likewise, continued action is required to build enduring advantages and outpace the gains made by competitors around the globe. This will require the Department to invest in modernization, implement innovative processes, prioritize our personnel and improve civilian hiring practices, and increase agile decision making at all levels.

STRATEGIC ENVIRONMENT

Today's strategic environment is the most complicated and potentially dangerous in my 35+ years of service. Our competitors and potential adversaries, particularly the People's Republic of China (PRC) and Russia, continue to challenge the rules-based international order

that has provided global stability and prosperity over the last seven decades. They seek to advance their interests and gain global advantages through political intimidation, economic coercion, cyber and information operations, asymmetric attacks on infrastructure, and the direct threat or actual employment of military force.

The People's Republic of China (PRC)

The PRC remains NORAD and USNORTHCOM's long-term pacing challenge. Beijing continues ambitious military modernization at an alarming pace. It would be naive to think their sprint to develop advanced cyber tools, maritime capabilities, and hypersonic technology has only regional applications, as the PRC continues to develop advanced long-range conventional and strategic capabilities and the infrastructure necessary to project military power at greater distances. Underpinning this growth is a rapid nuclear expansion that is on pace for the PRC to expand their nuclear stockpile from what DoD estimates is over 400 today to about 1,500 by 2035. While less observable, the PRC's aggressive efforts to exploit the information technology sector are accelerating an increasing threat to North America.

The PRC's aggressive actions in the Pacific in mid-2022 following Congressional visits to Taiwan illustrate how regional events create geostrategic ripple effects that can quickly reach our shores. President Xi is likely to use his next term in office to double down on the PRC's revisionist foreign policy, and is likely to include global efforts to undermine the United States and bolster partnerships with U.S. competitors, including Russia. In February 2022, Xi signaled his intent to follow this path when he declared the PRC-Russia friendship would have no limits in a public pronouncement just weeks before Russia's illegal and unprovoked full-scale invasion of Ukraine. The PRC has almost certainly watched the war to draw lessons that will inform its next steps toward Taiwan.

Xi's statement also proved to be more than rhetorical when, in May 2022, the PRC and Russia conducted a combined bomber patrol over the Sea of Japan coinciding with the Quad Leaders' Summit in Tokyo. The May 2022 bomber patrol was followed by a second bomber patrol in November 2022. The cooperation is not confined to the air domain. PRC and Russian naval forces conducted a combined patrol in the fall of 2022 that covered 7,000 nautical miles in the Pacific, included a first-ever combined naval transit of the Aleutian Islands, and came on the heels of Xi sending scores of troops to Russia to participate in Moscow's largest annual military exercise. For years, the PRC has relied on Russian military materiel to build its armed forces, and I am aware of reports that the PRC has transferred materiel with military applications to Russia during Russia's war against Ukraine. These actions are more than symbolic and demonstrate the PRC's growing power projection capabilities, which will likely encompass the Arctic in the next decade—a region the PRC is eying with its self-proclaimed status as a near-Arctic state.

Russia

As USNORTHCOM and NORAD take necessary measures to defend against a growing PRC threat, the commands continue to defend the United States and Canada every day against Russian aggression in all domains. Russia's brazen and unprovoked full-scale invasion of Ukraine in 2022 proved that Russia has the capability and capacity to inflict significant damage to infrastructure and other critical targets with its all-domain long-range strike capabilities. Russia also has a history of conducting clandestine operations in other nations to achieve its political objectives. While Russia has overplayed its hand, suffered significant losses to the heroic Ukrainian defense forces, and inadvertently helped to unify NATO, it has gained real-world combat experience as it enters its second year of the full-scale invasion. The meager

performance of Russia's ground forces in Ukraine should not overshadow other capabilities it has showcased in Ukraine, including air- and sea-launched cruise missiles capable of striking North America, cyber activities, and economic coercion. For the first time, we also saw Russia employ its new KILLJOY air-launched hypersonic missile in combat.

Concurrent with its war against Ukraine, Russia has also continued to conduct major military exercises and test developmental capabilities that will compound the threat to North America once fielded. In April 2022, Russia tested the massive SARMAT ICBM, a highly capable strategic weapon that helps reinforce the critical importance of a modern and reliable U.S. strategic deterrent. Meanwhile, Russia is testing its special mission Belgorod nuclear submarine, a modern platform capable of carrying the nuclear-capable Poseidon torpedo, designed to hold the homeland at risk by striking coastal targets from thousands of miles away.

The test of the Belgorod followed Russia's Arctic military exercise that included live-fire cruise missile launches designed to test Moscow's readiness for a conflict in the high north. Last fall, Russia added its first SEVERODVINSK-class conventional and nuclear capable cruise missile submarine to the Pacific Fleet, which poses a new challenge to our defense of the western approaches to North America. In October 2022, in the midst of elevated international tensions stemming from Russian threats to escalate its already brutal campaign in Ukraine, Russia chose to proceed with its annual strategic forces exercise, including demonstrations of multiple nuclear strike capabilities. Finally, in January 2023, a Russian GORSHKOV-class frigate transited the western Atlantic while armed with Tsirkon hypersonic cruise missiles.

I believe it would be shortsighted to view Russia's war against Ukraine as a limited regional crisis. Russia's actions increase the very real risk of miscalculation and the conflict's expansion beyond its current boundaries—scenarios that could rapidly increase the risks to North

America and continental defense. If Russia should seek to compel allies to reconsider their support for Ukraine through escalatory actions or follow through with the desperate threats to use nuclear weapons in Ukraine, the risks to the Homeland would increase.

DPRK and Iran

The Democratic Peoples' Republic of Korea (DPRK) tested at least 65 conventional theater and long-range nuclear capabilities over the last year. That number includes the first tests of a new larger, longer range, and more capable ICBM, adding another missile that can likely reach the entire homeland and one the regime claims is capable of carrying a hypersonic glide vehicle payload. The DPRK tested more missiles in 2022 than any time in its history, showing that the regime will continue to prioritize military capabilities at the expense of needed food and pandemic relief for its people. Public reports of renewed nuclear test preparations further highlight the grave danger this regime poses to regional and global stability. We must remain ready for multiple contingencies and potential crisis on the Korean Peninsula.

The DPRK's reckless pursuit of advanced nuclear capabilities and robust ballistic missile research, development, and testing threatens regional stability, our allies and partners, and potentially the homeland. However, today I remain confident in our current capability to defend the homeland against a limited DPRK ballistic missile threat. Looking forward, I am concerned about future capacity and capability to respond to advancing DPRK ballistic missile threats, making it crucial to field the Next Generation Interceptor (NGI) as funded in the FY23 Consolidated Appropriations Act (P.L. 117-328).

Iran has not shied away from pursuing malign global activities, including in North America; the regime continues to pose a significant threat to the United States, as well as our partners in the Central Command region. The August 2022 disclosure of an Iranian plot to

assassinate a former senior U.S. official on U.S. territory illustrated the brazenness of the Iranian government. The regime's decision to provide Russia with unmanned loitering munitions used to attack civilian infrastructure in Ukraine provides further evidence of Iran's embrace of destabilizing activity. A future decision by the regime to pursue an ICBM-class missile would add yet another threat vector capable of striking North America.

Regional Security Threats

I remain concerned about transnational organized crime in Mexico and the Western Hemisphere and the unrelenting violence it spawns and insecurity it creates, as cartels vie for control of lucrative illicit markets. Cartels control fentanyl, cocaine and methamphetamine trafficking as well as other drugs, and are demonstrating the capability to use improvised explosives and small-unmanned aerial systems against Mexican security forces in Mexico, which will likely embolden the cartels and challenge our partners. As USNORTHCOM supports our law enforcement and international partners in countering transnational criminal organizations in our area of operations, I remain steadfast in my commitment to our military partners in Mexico and The Bahamas.

I commend Mexico's arrest last summer of the cartel member who brutally murdered a DEA agent decades earlier, as well as the recent arrests of Ovidio Guzman Lopez, the son of Sinaloa Cartel leader Joaquin "El Chapo" Guzman, and Jose Rodolfo Villareal-Hernandez, a Mexican cartel leader known as "El Gato." These arrests are examples of a shared commitment to justice, buttressed by shared values and our decades-long partnership, which stands in stark contrast to PRC and Russian malign and self-serving activities in the Western Hemisphere.

I am committed to deepening the already strong partnership with the Mexican and Bahamian militaries to advance our mutual goals, from upholding human rights to ensuring

hemispheric defense. I was proud to host my counterparts from the Mexican Department of National Defense (SEDENA) and Department of the Navy (SEMAR) in early 2022 and visit The Bahamas in late 2021, and we will continue to work with Mexico and The Bahamas to stamp out attempts by the PRC or Russia to divide our countries and our partnerships.

Transnational challenges

USNORTHCOM's 20th anniversary offered a reminder of the transnational challenges that have shaped the Command from its inception. Foremost is the enduring transnational terrorist threat to North America, led by Sunni extremist groups and their supporters in North America. The arrest in August 2022 of an ISIS-inspired individual in New Mexico who had surveilled a U.S. military base is a stark reminder that military facilities remain attractive targets to terrorists. More broadly, the Taliban's return to power in Afghanistan and violent extremist groups' ongoing presence in the region indicate a renewed threat to the region that we cannot discount. This extremist threat transcends south Asia and extends to other regions with security challenges, including the Middle East and sub-Saharan Africa, where terrorists continue to operate, train, and plan.

Where We Are Today: 20 Years of USNORTHCOM and 65 Years of NORAD

USNORTHCOM was established on October 1st, 2002, in the immediate aftermath of the 9/11 terrorist attacks against the United States, marking the first time since the colonial era a single commander was responsible for the defense of the U.S. homeland. Twenty years later, the likelihood of a major attack inside the United States by a foreign violent extremist organization has diminished following a generational, whole-of-nation effort. However, the primary threat to the homeland is now far more significant and consequential. Multiple peer competitors and rogue states possess the capability and capacity to threaten our citizens, critical infrastructure,

and vital institutions. These competitors possess, or are developing, the modern capabilities that limit the time and options available to decision makers responsible for defending our interests. In addition to destructive kinetic and cyber capabilities, malign actors actively exploit our democratic society by spreading disinformation that drives wedges between our citizens, undermines democracy, and weakens our alliances.

In crisis or conflict, potential adversaries will likely seek to interfere with the Department's ability to project power abroad. Disruptions of military and civilian transportation infrastructure in North America could impede the ability of the United States and Canada to project combat power. Today I assess, as I have for nearly three years, that homeland defense is a potential limiting factor to ensuring rapid and effective implementation and execution of global contingency plans. This is due to my lack of domain awareness, limited timely access to forces that are ready to operate throughout my areas of responsibility, including the Arctic, and a lack of resilient infrastructure enabling the Joint Force to fight in and from the homeland while ensuring forward power projection.

Defending the homeland against an ever-growing array of kinetic and non-kinetic threats will continue to require a collaborative, whole-of-nation approach to assessing vulnerabilities and developing appropriate deterrence, denial, and defense strategies. Cyber risks to critical infrastructure remain a significant concern and a domain awareness gap. DoD is tasked only with defending defense networks, but military facilities and missions frequently rely on civilian lifelines such as energy grids, transportation infrastructure, and other critical infrastructure. USNORTHCOM, due to law and policy, has limited insight into potential risks to commercial networks, which could lead to uncertainty in planning for consequence management. DoD's establishment of policy regarding the defense of critical infrastructure is a necessary step

forward, and USNORTHCOM will continue to work with the Department and key mission partners, to include agencies with critical infrastructure security and cybersecurity responsibilities, to ensure key defense infrastructure is defended from attacks.

NORAD, the unique U.S. and Canadian bi-national command, was established in May 1958 to defend North America from Cold War-era Russian strategic bombers entering U.S. and Canadian airspace from the Arctic approaches. Sixty-five years later, Russia has restored its capability to threaten North America with modernized bombers, surface ships, and submarines armed with long-range, highly precise nuclear and conventional cruise missiles. The PRC is making rapid progress in developing similar capabilities, which will further complicate NORAD's warning missions and affect national strategic decision making.

While NORAD's missions to provide aerospace warning, aerospace control, and maritime warning remain critical to homeland defense, action and investment are needed to keep pace with competitors that clearly seek to hold North America at risk above and below the nuclear threshold. For decades, NORAD has relied heavily on the North Warning System arrayed along the Arctic coasts of Canada and Alaska to detect potential airborne threats to North America. It is clear that our competitors possess long-range strike capabilities that could be used to attack the United States and Canada from outside the detection range of legacy sensors.

In order to maintain domain awareness and ensure integrated threat warning and attack assessment to national leadership, the United States and Canada must continue to move swiftly to field Over the Horizon Radar (OTHR), as funded in the FY23 Consolidated Omnibus Appropriations Act (P.L. 117-328). OTHR is a proven, affordable technology that will ensure our ability to detect threats from surface to space in the approaches to North America. I commend both the Department of Defense and the Canadian Department of National Defence for

their commitment in FY23 to investing in OTHR, and I respectfully urge both Governments to ensure this vital capability is fielded as quickly as possible.

NORAD's contributions to homeland and continental defense will remain vital for many years to come, and will continue to rely on strong cooperation and shared investment between the United States and Canada. The U.S. and Canadian continental defense framework has an unrivaled legacy of success and serves as an international model of defense cooperation. I remain encouraged by the bi-national commitments to modernizing the platforms, sensors, and capabilities necessary to execute NORAD's missions; this collaborative approach to deterring and defending against threats to North America is critical. NORAD must continue to look to the future and take necessary measures today to counter the threats of tomorrow, and investments by the United States and Canada must address kinetic and non-kinetic threats to our nations.

Potential threats to North America routinely transit international borders and the boundaries between U.S. geographic combatant command areas of responsibility. NORAD's ability to provide timely aerospace warning and control and maritime warning will be bolstered by the United States and Canada's joint commitment to improving global domain awareness, modernizing command and control systems to provide faster, better-informed decision making, and continuing collaborative research, development, and innovation. These efforts will ensure NORAD's ability to compete with the PRC and Russia for years to come while clearly signaling a lasting commitment to a robust, modern, and effective defense of North America.

USNORTHCOM and NORAD Priorities

My priorities for NORAD and USNORTHCOM directly reflect the need to inform the rapid, agile decisions required of senior leaders in this dynamic and complex strategic environment. Our competitors continue to field capabilities specifically intended to strike with

limited warning, which decreases the time and options available to national leaders in a crisis. Continuing to trust legacy processes and capabilities increases risk to the homeland and compounds the risk of miscalculation and inadvertent escalation. USNORTHCOM and NORAD are working urgently to increase the domain awareness, information sharing, and global integration necessary to ensure national leaders have as much time and as many options as possible.

As competitors and potential adversaries continue to field advanced all-domain capabilities with the potential to create significant effects in the homeland, it is imperative that the United States and Canada move quickly to improve domain awareness from the seafloor to space and cyberspace for all approaches to North America. The Over-the-Horizon Radars (OTHR) funded in the FY23 President's Budget, along with the OTHRs announced by the Government of Canada as part of NORAD modernization, will leverage proven technology and will significantly improve the ability of USNORTHCOM and NORAD to detect and track potential threats to North America and the homeland from the Earth's surface to space. That capability, in turn, will directly correlate to more time available to leaders at all levels, enabling the creation and employment of better deterrence options and if required, defeat options.

U.S. Space Force investments in advanced space-based missile warning sensor capabilities show great promise with particular regard to hypersonic and advanced missile threats. These future systems will detect, track, and identify threats, including hypersonic threats, enable better warning and assessment, and develop actionable targeting solutions, at a much faster pace than we currently experience, while also delivering an inherent operational resilience. Given our competitors' advanced maritime domain capabilities, I fully support the Navy's investment in a modernized Integrated Undersea Surveillance System. These

capabilities, in turn, will directly correlate to more time and options available to produce a favorable outcome for the United States and Canada.

Canada's plans to fund a layered surveillance system that will improve shared domain awareness in the northern air and maritime approaches to North America will have significant, long-term benefits for both NORAD and USNORTHCOM's missions. Planned Canadian investment in Arctic and Polar radars and spaced-based surveillance systems, along with advanced munitions, communications, and infrastructure clearly demonstrates shared commitment to NORAD and the combined defense of the United States and Canada.

In addition to the investment in OTHR, NORAD and USNORTHCOM have also demonstrated the potential for linking existing platforms and sharing data with multiple commands, interagency and international partners. By sharing data previously trapped in bureaucratic and organizational stovepipes through innovative programs like Pathfinder, Northstar, and the Global Information Dominance Experiments (GIDE), USNORTHCOM and NORAD have proven that it is possible to rapidly improve domain awareness and streamline global information sharing without the costs associated with fielding exquisite new capabilities. It is crucial that the Department of Defense and the Services, as well as the Canadian Department of National Defence, continue the work to unlock the remarkable potential of these initiatives.

I am encouraged by the establishment of the Department's Chief Digital and Artificial Intelligence Office (CDAO), and I believe that the CDAO must be empowered to rapidly integrate systems, software and platforms in order to maintain our competitive advantage across the Joint Force. Over the past several years, actions by each of our competitors and potential adversaries have made it clear that regional actions have global diplomatic, economic, and

military ramifications. It is simply unrealistic to assume that crises will remain confined by artificial boundaries, and we must adapt plans and perspectives to account for that global reality.

The feasibility of every other Geographic Combatant Command's plans will require active campaigning in and from North America, and successful defense of the homeland is necessary to deter adversaries and assure allies and partners. Therefore, I have also directed that USNORTHCOM and NORAD prioritize homeland defense campaigning to demonstrate our readiness, capabilities, and resiliency. I am also operationalizing the commands to accelerate the flow of information from sensor to decision maker. Our competitors and potential adversaries have shown that they will hold the homeland at risk in a conflict, and USNORTHCOM and NORAD are acting today to ensure homeland defense plans are understood, exercised, and resourced.

While USNORTHCOM and NORAD have made strides in the homeland defense mission, building a resilient Joint Force is a fundamental element of all Department planning, exercises, and operations. The DoD's worldwide missions and responsibilities must evolve from regionally focused approaches to globally integrated efforts that account for finite resources and associated risks. At present, I am concerned for the commands' ability to execute assigned missions—including contingency and operations plans in support of homeland defense. I am limited by a lack of timely access to forces that are organized, trained, and equipped to operate throughout the NORAD area of operations and the NORTHCOM area of responsibility, as well as by insufficient supporting infrastructure.

A strong homeland defense is the foundation of our nation's ability to project power globally while deterring aggression and achieving our strategic objectives in competition, crisis, and conflict. As such, every plan, exercise, and policy decision must consider the necessity of

defending the homeland when evaluating competing demands for forces and threats to global campaigning. That, in turn, will require the Department of Defense and the Canadian Department of National Defence to place greater focus on developing the depth, flexibility, advanced technologies, and supporting infrastructure required to respond to future challenges while addressing growing threats to the homeland.

Defense Support of Civil Authorities (DSCA)

When directed by the Secretary of Defense, USNORTHCOM provides Defense Support of Civil Authorities (DSCA) in the Continental United States, Alaska, and Puerto Rico. In preparing for and responding to major natural and human-caused disasters, USNORTHCOM serves as the DSCA synchronizer to support assessment and recovery while simultaneously acting as the supported combatant command in the command's area of operations.

USNORTHCOM often supports federal, state, tribal, territorial, and local (FSTTL) disaster relief efforts. These collaborative, whole-of-government efforts demonstrate national resilience that should reassure the American public, while also making clear to potential aggressors, that the United States routinely executes interagency domestic relief operations that allow our nation to recovery quickly following even large-scale disasters. It is equally important for our FSTTL partners to identify and address their capabilities and capacity gaps to fully perform the roles, missions, and operations under their authorities. This kind of response, particularly when it is accomplished with little or no military support, can generate a deterrent effect by casting doubt in competitors' minds about their ability to produce significant effects from an attack on the homeland.

USNORTHCOM is uniquely suited to support our federal partners in the aftermath of a chemical, biological, radiological, or nuclear (CBRN) attack. The Department must remain

committed to this crucial mission to ensure these highly trained, specialized elements stand ready to respond immediately in the event of a weapon of mass destruction event in the United States.

I continue to stress the importance of USNORTHCOM's defense support of civil authorities, as rapidly executed, well-planned, multi-agency responses to wildfires, hurricanes, pandemics, and other significant disruptions are perhaps the most visible demonstration of the military's support to the American people. USNORTHCOM works year-round with our mission partners at every level to strengthen relationships, improve communications, and incorporate lessons learned from previous responses in order to deliver rapid and effective support to lead federal agencies. Our command takes tremendous pride in supporting our FSTTL partners, while helping to highlight the resourcefulness and solidarity of the American people in the face of adversity. It should be clear to competitors and potential aggressors that the United States routinely responds to and recovers quickly from large-scale disruptions—and USNORTHCOM is always ready to support those efforts with military capabilities as directed by the Secretary.

USNORTHCOM support to civil authorities includes the command's ongoing support of federal law enforcement efforts to counter the transnational criminal organizations (TCOs) that have caused so much harm to our nation. Illicit drugs trafficked by transnational criminal enterprises kill more than one hundred thousand U.S. citizens each year, and the number of fatal overdoses have risen dramatically as cartels have increased the volume of fentanyl smuggled into the United States. As directed by the Secretary of Defense and in accordance with my direct guidance, USNORTHCOM's subordinate command, Joint Task Force North (JTF-N), provides U.S. federal law enforcement partners with intelligence and counter-threat finance analysis and other support as requested to disrupt the sophisticated financial and physical networks used to infiltrate illicit goods and exploited human traffic into the United States. The important work

done by USNORTHCOM and JTF-N in countering transnational criminal organizations and disrupting the flow of illegal drugs into the United States is a national security imperative that directly supports homeland defense.

Natural disasters, public health threats, and transnational irregular migration will likely continue to require DoD support for our lead federal partners. Environmental change will also continue to have a direct impact on military readiness and resources, as was made clear by the massive destructive power of Hurricane Ian in September 2022 and by western wildfires that are growing in scale and frequency as fire seasons now extend throughout most of the year. It is necessary to plan and account for the growing likelihood of natural disasters that disrupt military operations and damage critical infrastructure, while units involved in response operations require time to reset and recover after completing their missions. The long-term consequences of extreme weather, rising sea levels, and increased flooding will continue to affect DoD missions, infrastructure, and personnel, especially those in the homeland.

Security Cooperation

In addition to our more visible homeland defense and DSCA operations, USNORTHCOM continues to reap tremendous benefits from our military-to-military relationships with our allies and partners in Canada, Mexico, and The Bahamas. Security cooperation with our neighbors is crucial to regional security, countering the influence of peer competitors, and addressing shared challenges. Security cooperation provides a critical and lasting advantage over our more isolated competitors, and I am grateful to the Department and to this Committee for your ongoing support of USNORTHCOM's vital work with our allies and partners. I am proud to work with my military counterparts in Canada, Mexico, and The

Bahamas as we support one another's efforts to defend our nations and stand united against malign actors seeking to expand influence and presence in the Western Hemisphere.

The military-to-military relationship between the United States and Canada remains extraordinary and vital. In addition to standing side by side as partners in NORAD for nearly 65 years, Canada has been a stalwart ally in continental defense and operations overseas for decades. The unique trust between our militaries is immediately apparent within the USNORTHCOM and NORAD headquarters, as U.S. and Canadian personnel work side-by-side in pursuit of shared missions and objectives. The Canadian Armed Forces' shared commitment to improved domain awareness, information sharing, and modernization of the capabilities necessary for deterrence and continental defense is essential to our united efforts to defend North America, and I am fortunate to serve alongside such steadfast and trusted allies.

The Mexican Department of National Defense (SEDENA) and Department of the Navy (SEMAR) continue to meet daunting internal and external security challenges with professionalism and resiliency. Keenly focused on enhancing regional defense, our Mexican military partners continue to make major investments in a modern, capable, and reliable force capable of interoperability with the U.S. and other partners. In light of that important effort, USNORTHCOM strongly supports SEDENA and SEMAR modernization initiatives, including the potential divestment of their fleet of MI-17 helicopters in favor of Western helicopters.

In April 2022, it was my honor to host the Secretaries of SEDENA and SEMAR at USNORTHCOM for the Bilateral Military Cooperation Roundtable (BMCR). During this important annual dialogue, USNORTHCOM and our Mexican military partners conducted a candid and highly productive assessment of our mutual security challenges, associated requirements, and shared commitment to addressing threats to our nations. Over the course of

three days, Secretary General Sandoval, Secretary Admiral Ojeda, and I reaffirmed our military-to-military relationship and committed to a number of concrete steps that will have significant and lasting positive impacts on regional security.

Our partners in the Royal Bahamian Defence Force (RBDF) continue to punch above their weight as they continue to provide important contributions to regional security. USNORTHCOM and the RBDF operate maritime surveillance systems at Great Inagua and Coral Harbour, and plans are on track to add a third site in the coming years. That shared capability has significant benefits for domain awareness in the southern approaches to North America and demonstrates The Bahamas' ongoing commitment to security cooperation with USNORTHCOM. Our collaboration has taken on added importance as the PRC's diplomatic corps in Nassau continues to produce anti-U.S. public statements while highlighting Chinese economic investment and humanitarian relief efforts in The Bahamas.

USNORTHCOM is strongly committed to a long-term partnership with the RBDF, and continued whole-of-government engagement and investment by the United States. As you know, the United States has been without a confirmed Ambassador to The Bahamas since 2011. No action was taken on the President's nominee last year, and the nomination was resubmitted in January 2023. This senior diplomatic position is critical to demonstrating the importance of the relationship between the United States and The Bahamas and to mitigating the PRC's efforts to gain a foothold only 50 miles from the U.S. east coast.

The Arctic

The ability of the joint force to operate and campaign in the Arctic remains a pressing concern for USNORTHCOM and NORAD. The PRC and Russia continue to invest in Arctic capabilities as both seek to increase presence and influence in the region while shifting the rules-

based international order to their advantage. More than 50 percent of USNORTHCOM's area of operations is in the Arctic, and USNORTHCOM and NORAD's priorities in the region continue to focus on increased presence, campaigning through joint training and exercises, and close collaboration with allies and partners.

The effects of environmental change in the Arctic will have significant impacts on accessibility, infrastructure, and competition for the foreseeable future, and the region remains the most unforgiving operational environment on earth. As the Department balances the demands of global mission requirements with difficult budgetary choices, USNORTHCOM and NORAD require access to trained and ready forces capable of operating throughout the commands' areas of responsibility—to include the Arctic. The Joint Force must keep sight of the fact that special training and purpose-built equipment are necessary to operate in a region in which extreme climate, distance, and geography quickly overtake the unprepared.

Over the last year, USNORTHCOM and NORAD collaborated with USEUCOM, USINDOPACOM, USTRANSCOM, USSOCOM and the military Services while conducting joint exercises in Alaska, Greenland, and northern Canada. These demanding events expose Joint Force participants to the demands of the Arctic operating environment and help to reinforce the necessity of a force trained and equipped to survive in the extreme cold and remoteness that defines much of the region. I am encouraged by the strategic objectives stated in the U.S. National Strategy for the Arctic that support better understanding of the region, exercising presence, and capitalizing on the definitive advantage of our international alliances and partnerships.

While the military Services' respective Arctic strategies acknowledge the importance of the Arctic and the need to develop the capabilities needed to operate and compete in the region,

direct investment in Arctic-capable platforms, training, and infrastructure continues to lag. It is necessary that the Joint Force has the ability to compete, fight, and win in the Arctic in the coming years, and the time for the Services to invest in the required equipment, infrastructure, and training is now. The PRC and Russia have clearly demonstrated their intent to expand their Arctic presence and operations, and I urge the Department of Defense, the Services, my fellow combatant commanders, and the Canadian Department of National Defence to move faster toward improving our collective ability to succeed in this strategically vital region.

Conclusion

Homeland defense remains the core mission of both USNORTHCOM and NORAD. The one constant throughout my time in command has been the extraordinary pace at which our competitors have advanced their capabilities to threaten the homeland. Despite those clear risks, the processes used by the Department of Defense and the Canadian Department of National Defence for planning, acquisitions, personnel hiring, technology development, and other activities necessary to the success of the defense enterprise remain largely unchanged from when I received my commission nearly 36 years ago.

As competitors develop greater capability, capacity, and intent to challenge the United States, Canada, and the rules-based international order, I believe that the greatest strategic risk for the United States stems from our own inability to adapt at a pace required by the changing strategic environment. In an era of incredible innovation and technological achievement, inflexible, outdated processes are a greater impediment to success than many of our competitors' capability advancements. We cannot continue to rely on Industrial Age practices and legacy platforms to compete in a digital age, and if we fail to evolve at the pace demanded by the strategic environment, our competitive advantage will continue to erode.

The Department and Congress must also be more willing to accept the relatively low risks associated with retiring legacy platforms in order to ensure our ability to fight and win against advanced and well-resourced competitors. Over the last decade, the PRC and Russia have made extraordinary technological advancements while the Department remains encumbered by obsolete capabilities and associated costs. To defend the homeland, USNORTHCOM and NORAD require a modern force with the capacity and capability to deter and if required defeat advanced peer competitors. Retiring systems that have exceeded their operational lifespans—to include fighters and command and control platforms at the end of their service lives—is necessary to accelerate the arrival of next generation capabilities.

Along with faster, more flexible development and acquisitions, the Joint Force requires predictable and timely funding to maintain readiness and increase capability, capacity, and resilience. The Continuing Resolutions that have become commonplace over the last decade have direct and lasting adverse consequences for military readiness, modernization, and planning. Predictable, on-time annual budgeting and appropriations, along with streamlined Department processes and greater tolerance for risk in developing and testing new capabilities, are essential to maintaining our competitive advantage.

The need to move faster is clear. The PRC and Russia have already fielded highly advanced hypersonic capabilities, while the United States' hypersonic program, although accelerating, still languishes well behind our competitors' efforts. Further, DoD faces operational challenges with civilian hiring processes for recruiting and hiring the innovative and experientially diverse workforce needed to drive innovation and advancement on pace with the civilian tech sector. Simply put, the Department must continue to strategically tackle hiring and

personnel management improvements to move its workforce goal of being an employer of choice forward.

Finally, the PRC high altitude balloon (HAB) incursion into our national airspace was obviously a significant event that shined a light on the PRC's brazen intelligence collection against the United States and Canada. It was the first time USNORTHCOM conducted an engagement over the United States in our history, and it made it clear that our competitors have the capability and intent to reach the homeland. The three Unidentified Aerial Phenomena (UAPs), also shot down days later by USNORTHCOM and NORAD, clearly demonstrated the challenges associated with detecting and identifying unmanned objects in U.S. airspace. As for NORAD and NORTHCOM, I commit to you that this event has already generated critical lessons learned for my commands and our mission partners, and I can guarantee that NORTHCOM and NORAD are going to continue to learn from it and do whatever is necessary to keep our country safe.

While we face significant challenges, there should be no doubt we have the finest military on the planet and that the commands will defend our nations with tenacity and resolve. In what is likely my final appearance before this committee, I remain deeply humbled and immensely proud to lead the noblest mission of any Combatant Command—defending the homeland. I am grateful to the Committee for your longstanding support of our missions and of the men and women who stand watch over our nation every day. I thank you for the honor of representing our Soldiers, Sailors, Airmen, Guardians, Marines, and civilians.

General Glen D. VanHerck, USAF
Commander, United States Northern Command and North American Aerospace Defense Command

Gen. Glen D. VanHerck is Commander, United States Northern Command and North American Aerospace Defense Command. USNORTHCOM conducts homeland defense, civil support and security cooperation to defend and secure the United States and its interests. NORAD conducts aerospace warning, aerospace control and maritime warning in the defense of North America.

Gen. VanHerck is a graduate of the University of Missouri and commissioned through the Reserve Officer Training Corps program. He has a diverse background that includes operational and training assignments in the F-15C Eagle, F-35A Lighting II, B-2A Spirit and B-1B Lancer aircraft. He has served as an instructor pilot and flight examiner in the F-15C, B-2A and T-6A Texan II. Additionally, he served as a U.S. Air Force Weapons School instructor in the F-15C and the B-2A.

He has commanded at the squadron, group and twice at the wing level, including the 325th Weapons Squadron, the 71st Operations Group, the 7th Bomb Wing, the 509th Bomb Wing. As a major general, he commanded the U.S. Air Force Warfare Center. His staff assignments include tours as the Chief of the B-2 Program Element Monitor at Headquarters Air Combat Command, the Director of Operations at Headquarters Air Force Global Strike Command, the Director of Plans and Integration at U.S. Strategic Command, the Vice Director of Strategy, Plans and Policy (J5) at the Joint Staff, and the Vice Director of the Joint Staff.

Prior to his current assignment, Gen. Glen D. VanHerck was the Director, Joint Staff, the Pentagon, Arlington, Virginia. In this role, he assisted the Chairman of the Joint Chiefs of Staff in his role as advisor to the President and Secretary of Defense, coordinated and directed the activities of the Joint Staff in support of the Chairman and served as the Staff Inspector General.

EDUCATION
1987 Bachelor of Science, Liberal Studies, University of Missouri, Columbia
1995 Squadron Officers School, Air University, Maxwell Air Force Base, Ala.
1999 Air Command and Staff College, Maxwell AFB, Ala., by correspondence
2000 Master of Science, Aviation Safety/Management, University of Central Missouri, Warrensburg
2005 Air War College, Air University, Maxwell AFB, Ala., by correspondence
2008 Master of Arts, National Security and Strategy, Naval War College, Newport Naval Station, R.I.
2008 Naval War College, Newport, R.I.
2009 U.S. Air Force Executive Leadership Seminar, Darden School of Business, University of Virginia, Charlottesville
2014 Combined Force Air Component Commanders Course, Maxwell AFB, Ala.
2015 Cyberspace Operations Executive Course, Maxwell AFB, Ala.
2015 Joint Flag Officer Warfighting Course, Maxwell AFB, Ala.
2016 Joint Senior Information Operations Course, Maxwell AFB, Ala.

ASSIGNMENTS
January 1988–January 1989, Undergraduate Pilot Training, 14th Flying Training Wing, Columbus Air Force Base, Miss.
February 1989–May 1989, Student, Lead-in-Fighter Training, Holloman AFB, N.M.
June 1989–November 1989, Student, F-15C Replacement Training, Tyndall AFB, Fla.

November 1989–December 1993, F-15C Aircraft Commander, Mission Commander, Instructor Pilot, Flight Examiner, 44th Fighter Squadron, Kadena Air Base, Japan
January 1994–June 1994, Student, U.S. Air Force Weapons School, Nellis AFB, Nev.
July 1994–May 1997, Chief, Weapons and Tactics, Flight Commander, Assistant Director of Operations, 94th Fighter Squadron, Langley AFB, Va.
May 1997–July 1998, F-15C Instructor Pilot, Chief of Safety, U.S. Air Force Weapons School, Nellis AFB, Nev.
August 1998–March 2001, Assistant Director of Operations, 393rd Bomb Squadron, Whiteman AFB, Mo.
April 2001–December 2001, Director of Operations, 325th Bomb Squadron, Whiteman AFB, Mo.
January 2002–July 2004, B-2 Program Element Monitor, Chief, Air Combat Command Senior Officer Management, Headquarters Air Combat Command, Langley AFB, Va.
July 2004–December 2004, B-2 Requalification Training, 394th Combat Training Squadron, Whiteman AFB, Mo.
January 2005–January 2007, Commander, 325th Weapons Squadron, Whiteman AFB, Mo.
January 2007–July 2007, Deputy Commander, 509th Operations Group, Whiteman AFB, Mo.
August 2007–June 2008, Student, U.S. Naval War College, Newport Naval Station, R.I.
July 2008–August 2008, Student, T-6A Pilot Instructor Training, 559th Flying Training Squadron, Randolph AFB, Texas
September 2008–January 2010, Commander, 71st Operations Group, Vance AFB, Okla.
January 2010–June 2010, Vice Commander, 71st Flying Training Wing, Vance AFB, Okla.
June 2010–June 2012, Director, Plans and Integration, Joint Functional Component Command for Global Strike, U.S. Strategic Command, Offutt AFB, Neb.
July 2012–February 2014, Commander, 7th Bomb Wing, Dyess AFB, Texas
February 2014–June 2015, Commander, 509th Bomb Wing, Whiteman AFB, Mo.
June 2015–March 2016, Director, Operations, Headquarters Air Force Global Strike Command, Barksdale AFB, La.
March 2016–July 2017, Commander, U.S. Air Force Warfare Center, Nellis AFB, Nev.
July 2017–August 2018, Vice Director, Strategy Plans and Policy (J5), Joint Staff, the Pentagon, Arlington, Va.
August 2018–September 2019, Vice Director, Joint Staff, the Pentagon, Arlington, Va.
September 2019–August 2020, Director, Joint Staff, the Pentagon, Arlington, Va.
August 2020–present, Commander, North American Aerospace Defense Command and United States Northern Command, Colorado Springs, Colo.

SUMMARY OF JOINT ASSIGNMENTS
June 2010–June 2012, Director, Plans and Integration, Joint Functional Component Command for Global Strike, U.S. Strategic Command, Offutt Air Force Base, Neb., as a colonel
July 2017–August 2018, Vice Director, Strategy, Plans, and Policy (J5), Joint Staff, the Pentagon, Arlington, Va., as a major general
August 2018–September 2019, Vice Director, Joint Staff, the Pentagon, Arlington, Va., as a major general
September 2019–August 2020, Director, Joint Staff, the Pentagon, Arlington, Va., as a lieutenant general
August 2020–present, Commander, North American Aerospace Defense Command and United States Northern Command, Colorado Springs, Colo. as a general

FLIGHT INFORMATION
Rating: command pilot
Flight hours: more than 3,200
Aircraft flown: T-1A, T-6A, T-37, T-38A, A/T-38B, T-38C, F-15A/B/C/D, F-35A, B-1B and B-2A

MAJOR AWARDS AND DECORATIONS
Defense Distinguished Service Medal

Distinguished Service Medal (Air Force)
Defense Superior Service Medal
Legion of Merit with two oak leaf clusters
Meritorious Service Medal with three oak leaf clusters
Air Medal
Aerial Achievement Medal with oak leaf cluster
Joint Service Commendation Medal
Air Force Commendation Medal Air Force Achievement Medal

EFFECTIVE DATES OF PROMOTION

Second Lieutenant Sept. 16, 1987
First Lieutenant Sept. 16, 1989
Captain Sept. 16, 1991
Major Aug. 1, 1998
Lieutenant Colonel Feb. 1, 2003
Colonel Sept. 1, 2007
Brigadier General Sept. 2, 2013
Major General May 13, 2016
Lieutenant General Sep. 27, 2019
General Aug. 20, 2020

(Current as of September 2020)

UNITED STATES SPACE COMMAND

PRESENTATION TO THE
SUBCOMMITTEE ON STRATEGIC FORCES
HOUSE ARMED SERVICES COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

Subject: Fiscal Year 2024 Priorities and Posture of United States Space Command

STATEMENT OF: General James H. Dickinson
Commander, United States Space Command

March 8, 2023

INTRODUCTION

On behalf of the 18,000 men and women of the 11th combatant command, U.S. Space Command, it is my honor and pleasure to testify before the committee. Our team is operating around the world providing satellite communication, space domain awareness, offensive and defensive space control effects, and positioning, navigation, and timing (PNT) services 24 hours a day, 7 days a week, 365 days per year. Space is fundamental to all joint military operations as outlined in the National Defense Strategy. It is also critical to our way of life enabling modern banking transactions, navigation, communication and so many other capabilities vital to our society and economy. Space touches our lives every day.

As the complexity of this domain grows, we must grow capability to provide the President and Secretary of Defense with options to deliver operational and strategic effects to achieve national objectives. Today, access to space is increasingly contested and congested. U.S. adversaries are developing, testing, demonstrating, and fielding a wide range of counterspace capabilities to degrade or deny the ability for the U.S. military to leverage critical space-based services. As of this year there are 8,225 satellites in low Earth orbit and nearly 1,000 satellites in geosynchronous Earth orbit (GEO).

My Command Strategy focuses on three areas to address the contested and congested environment: Strengthening Relationships and Attracting New Partners; Integrating Commercial, Interagency, and Academic Organizations; and, Building and Maintaining Competitive Advantage. The Command's disciplined focus on these areas has built irreversible momentum toward full operational capability and will ensure we deliver on our promise that there will never be a day without space.

CHALLENGES IN SPACE

Challenges to a safe, secure, stable, and sustainable space domain are increasing. Both the People's Republic of China (PRC) and the Russian Federation are fielding capabilities that aim to hold U.S., Allied, and partner space assets at risk. North Korea and Iran are in the early stages of developing their space enterprise.

The PRC conducted the first fractional orbital launch of an ICBM with a hypersonic glide vehicle in mid-2021. This system could enable the PRC to rapidly launch weapons that challenge missile warning and missile defense architectures.

Russia's 15 November 2021 destructive anti-satellite (ASAT) missile test and its subsequent acts in connection with its further invasion of Ukraine threaten to foreshadow the future of warfare and national security. Assured space-based assets, commercial space capabilities, and space domain awareness are imperative to global security. Russian interference with space-based capabilities during its invasion of Ukraine and continued threats to carry out "retaliation" against commercial satellite infrastructure demonstrate a willingness to employ counterspace capabilities to gain military advantage. Russia's cyber attacks in late February 2022 against commercial satellite communications networks to disrupt Ukrainian command and control during the invasion and spillover impacts into other European countries - highlighted an important nexus between government and private sector equities in space.

These events exemplify the PRC and Russian commitment to fielding diverse counterspace capabilities across multiple domains including cyberspace, electronic warfare, directed energy, anti-satellite missiles, and potentially even space-to-ground weapons. Current PRC and Russian counterspace capabilities range from temporarily deceiving, disrupting, or

denying space services, to permanently degrading or destroying space-based capabilities. All are designed to deter U.S. response to conflict or crisis and ultimately diminish U.S. influence and military effectiveness.

The Pacing Challenge—The People's Republic of China

The PRC aims to displace U.S. alliances and security partnerships in the Indo-Pacific region, surpass U.S. global influence and power, and revise the international order to advance its authoritarian interests. Beijing views the U.S. as increasingly determined to contain the PRC as it continues to modernize the People's Liberation Army (PLA) into a "world-class force" by the middle of the century. PRC military strategy remains fixed on the concept of "active defense" in all domains, including space.

President Xi views space power as a key to "great power status" and a cornerstone of the PRC's economic, political, and military ambitions. China expects its future wars to be fought mostly outside its borders and in the maritime domain. PLA strategy emphasizes the role space-based systems will play in such conflicts. Chinese military doctrine states that space power is the essential "glue" that holds together air, sea, and land control and that "the dominance of space has been inseparable from the outcome of war."

The PRC continues to strengthen its military space capabilities, investing in space-based intelligence, surveillance, and reconnaissance (ISR), satellite communication, and navigation. It is also improving satellite meteorology, human spaceflight, and robotic space exploration.

The PRC employs a robust space-based ISR capability designed to enhance its worldwide situational awareness. Its ISR satellites provide electro-optical and synthetic aperture radar imagery as well as signals intelligence data. They are used for military and civilian remote sensing and mapping, terrestrial and maritime surveillance, and intelligence collection. The PLA

owns and operates about half of the world's space-based ISR systems. These capabilities support the PLA's ability to monitor, track, and target U.S. and allied forces worldwide.

China's BeiDou navigation system, like the U.S. Global Positioning System (GPS), is operational and provides persistent, all-weather, and high-accuracy PNT services to users globally. The PLA uses BeiDou's PNT to enable force movement and precision-guided munition employment. This system also includes messaging and user-tracking capabilities that provide the PLA enhanced command and control (C2). China's delivery of BeiDou furthered a long-standing goal to reduce reliance on foreign satellite communications and navigation systems and to export its domestic alternative globally as part of its Belt and Road Initiative.

Today, China can hold U.S., Allied, and Partner assets at risk in all orbits. The PLA is specifically pursuing capabilities to counter U.S. space assets to achieve space superiority and enable PLA freedom of maneuver. Chinese military academics advocate for defeating adversaries' PNT, electronic warfare (EW), and ISR to "blind and deafen the enemy." The PLA has an operational ground-based ASAT missile for low Earth orbit satellites, and is pursuing additional anti-satellite weapons capable of destroying satellites up to GEO. The PLA has also tested hypersonic glide vehicles aimed at defeating traditional missile warning systems and ballistic missile defenses.

The PRC developed the Shenlong and Tengyun spaceplanes to explore reusable technology with enhanced maneuverability. The initial prototype, launched in 2020, stayed in orbit for two days before returning to Earth. A second Shenlong, launched in August 2022, remains on orbit today. Payloads on operational versions of these spaceplanes could provide enhanced space services that the PLA could integrate into its weapons and C2 systems to erode the information advantage of the United States and our Allies.

China launched its SJ-21 satellite on 24 October 2021 and reported in open press that its mission was "to test and verify space debris mitigation technologies." On 22 January 2022, SJ-21 rendezvoused with a defunct and fuel-depleted BeiDou satellite. By 26 January, SJ-21 had captured the defunct satellite and pulled it several hundred miles into a higher graveyard orbit. The SJ-21 subsequently released the defunct BeiDou satellite and returned to geosynchronous orbit. While removing a defunct satellite to graveyard orbit may be innocuous, the SJ-21 could clearly serve in a counterspace role and hold our geosynchronous satellites at risk.

Russian Use of Space and Counterspace

Russia's use of space and counterspace capabilities during the Ukraine conflict validates the Department of Defense's (DoD) long-held understanding of Russian doctrine. Russian space capabilities have supported Russian military ground operations and enabled deep precision strikes against Ukrainian infrastructure. Media reported on Russian jamming of radar observation sites and navigation signals (including GPS) serving the region, as well as cyberattacks on Ukrainian and European space-enabled communications.

Russia has developed a suite of counterspace capabilities including EW and directed energy weapons to deny, degrade, disrupt, destroy, and deceive communications, navigation, and space-based ISR. Its directed energy weapons include several ground-based, low-power lasers intended to blind satellites temporarily, and high-power lasers developed to damage other U.S. satellites permanently.

Russian cyber attacks in late February 2022 disabled very small aperture terminals in Ukraine and across Europe. This included tens of thousands of terminals outside of Ukraine that, among other things, support wind turbines and provide internet services to private citizens.

Today, we continue to see cyber actors focusing their efforts on our space architecture, that of our Allies, and of our international and commercial Partners.

Russia conducted a destructive direct-ascent ASAT missile test on 15 November 2021. The resulting explosion generated a debris field that will threaten satellites and crewed space stations for decades. In contrast to Russia's deeply irresponsible test, the United States government announced in April 2022 that it will commit not to conduct destructive, direct-ascent ASAT missile testing, and that the United States seeks to establish this as a new international norm for responsible behavior in space. In its wake, in December 2022, one-hundred and fifty-five nations voiced their widespread concern at the United Nations General Assembly about the impact of destructive testing of direct-ascent ASAT missiles on the long-term sustainability of the outer space environment. One hundred and fifty-five countries at the United Nations joined the United States in calling upon all nations to commit not to conduct destructive direct-ascent ASAT missile tests.

The Defense Intelligence Agency's 2022 Challenges to Space Report highlighted that Russia tested a space-based ASAT weapon in 2020. Russia has continued to research and develop sophisticated orbital capabilities that could serve dual-use purposes.

PRC-Russia Cooperation

PRC and Russian cooperation on defense matters has increased in recent years. The PLA participated in Vostok last year – Russia's annual strategic forces exercise. Beijing has provided Moscow political and economic support throughout the full-scale invasion of Ukraine that began last year. In February 2022, the two countries announced 16 agreements including one to increase the interoperability of their respective nations' global navigation satellite systems. The new accord will align timing standards of China's BeiDou constellation and the Russian

GLONASS architecture. A fully integrated system will provide greater precision, resiliency, and allow for more efficient allocation of service.

Russia possesses deep, decades long, expertise in space operations. Recently, however, its progress has been hampered by shortfalls in funding, a lack of qualified personnel, and other resource inadequacies. Dramatically reduced access to key electronic components from long standing international sanctions has negatively impacted Russia's aerospace industry.

Meanwhile, the PRC has committed considerable economic and technological resources to growing all aspects of its space program. It is operating a space station and is taking on a greater role in lunar and deep space exploration. In 2021, Moscow and Beijing agreed to an International Lunar Research Station and the PRC may attempt to conduct its first crewed landing on the surface of the Moon before 2030.

North Korean and Iranian developments

North Korea has demonstrated non-kinetic counterspace capabilities including GPS and satellite communication (SATCOM) jamming. It likely intends to deny space-based navigation and communications during conflict. North Korea seeks to develop its space capabilities and has placed two satellites in orbit. North Korea's space program has provided it with data applicable to its long-range and multi-stage ballistic missile programs. Additionally, North Korea conducted a record number of missile launches last year including intercontinental and submarine-launched ballistic missiles and has continued these activities in 2023.

Iran demonstrated a growing commitment to space with the launch of the Khayyam sensing satellite. This system, developed cooperatively by Iran and Russia, was launched by Russia on behalf of the Iranian government. Similar to North Korea, Iran could apply data from its space program to further the development of long-range missiles.

STRENGTHEN RELATIONSHIPS AND ATTRACT NEW PARTNERS

U.S. Space Command plans and executes space operations in coordination with other combatant commands, the Services, DoD agencies, Allies, and a diverse array of international and commercial Partners to achieve national security objectives. Space Situational Awareness (SSA) Data Sharing Agreements are one avenue that U.S. Space Command currently uses to support the safety of the domain. SSA Data Sharing Agreements provide a mechanism for U.S. Space Command to receive and share unclassified SSA information with agreement partners to enhance the materials maintained in the U.S. Government space awareness catalogue, promote greater transparency in space, and to enhance global space-flight safety. Agreement partners are able to request support from U.S. Space Command in seven advanced areas. The use of these services demonstrates our partners' desires to promote responsible use of the space domain and safety of space-flight for all satellite operators in the U.S. and around the world. Currently the United States Space Command maintains 169 SSA Data Sharing Agreements with 129 commercial companies, 7 academic institutions, and 33 governments or international organizations.

Moving from a focus on promoting safe and responsible space operations to the imperative of assuring the advantages of space for national security, U.S. Space Command's rapidly expanding network of international military-to-military partnerships provides tremendous strength and resiliency for long-term space security and stability. Together, we contribute to deterring aggression and supporting the security and stability of space that generates prosperity for all. Our Allies and Partners possess complementary capabilities and forces that both cover current U.S. gaps and free U.S. assets for alternate priorities. They also contribute unique perspectives, regional relationships, and information sharing opportunities that improve our

understanding of the environment and expand our security cooperation options. U.S. Space Command's growing number of foreign liaison officers and exchange officers – 29 in total – are an example of the Command's priority to maintain connectivity with our foreign counterpart commands and better understand their perspectives and priorities.

Interweaving space capabilities into the warfighting functions and domains of our fellow combatant commands contributes an agile, credible, and integrated deterrent. In addition to our longstanding close partnerships with U.S. Indo-Pacific Command, U.S. European Command, U.S. Northern Command, and U.S. Central Command, U.S. Space Command, in collaboration with U.S. Africa Command and U.S. Southern Command, is developing opportunities to increase space capabilities and cooperation in Africa and Latin America. U.S. Space Command's Global Sentinel 2022 exercise included 24 international partner nations in one location participating in a modeling and simulation event based on integrated systems. The exercise focused on space domain awareness to support the protection and defense of shared security interests in outer space. Global Sentinel 2022 provided a significant strategic shaping opportunity to strengthen partnerships while amplifying U.S. Space Command and partner nation deterrence and assurance messaging. Global Sentinel evolved from its inception in 2014 and is an ongoing annual effort, comprising six to eight real-world events and a capstone. Global Sentinel remains the only event of its kind that includes multinational military partners from all major theaters, furthering collaboration focused on SSA and space domain awareness.

U.S. Space Command provides space planning and operations expertise, including integration, coordination, and deconfliction of capabilities to all combatant commands through our Joint Integrated Space Teams. These teams, combined with joint planning and targeting, ensure space capabilities are ready when needed. U.S. Space Command is fully integrated with

U.S. European Command's response to Russian aggression in Ukraine. We are tightly aligned and synchronized with U.S. Indo-Pacific Command to deter, and if necessary, defeat our nation's pacing threat. U.S. Space Command maintains close coordination with the Military Services as they develop future capabilities and competencies that will add to our decisive advantage.

U.S. Space Command is implementing the Mission Partner Environment (MPE) as our operating framework for communicating with Allies and Partners. The MPE enables C2 and information sharing across a range of military operations and enables information exchange between all participants within a specific partnership or coalition. The MPE supports execution of critical joint warfighting functions: C2, intelligence, fires, movement and maneuver, protection, information, and sustainment. Commanders require common services such as chat, secure voice, and email across the enterprise and expeditionary levels of operation for human-to-human collaboration. The MPE enables the DoD to appropriately share information with mission partners at the speed required for operations.

U.S. Space Command is continually planning to ensure we are prepared to respond to all contingencies. The command has developed the capacity to synchronize effects across combatant commands to achieve integrated operations in campaigning and contingency -- a first for the command and the DoD. These efforts ultimately provide space enabled effects to enable and assure effective land, air, and sea operations.

INTEGRATING COMMERCIAL, INTERAGENCY AND ACADEMIA

Mutually beneficial alliances and partnerships provide an asymmetric strategic advantage unmatched by our competition. Our robust and growing team of Partners includes commercial, interagency, and academic organizations. Together these Partners develop and deliver greater military space power that deters aggression and supports space domain stability. U.S. Space Command has published a Commercial Integration Strategy to enhance the command's overall military space power through the collaboration, integration, and partnership with U.S. commercial industry. The strategy sets priorities and synchronizes commercial integration efforts so that U.S. Space Command can mitigate capability gaps, improve space architecture resiliency, and gain and maintain a technological and operational advantage over adversaries.

Establishment of a New National Space Traffic Management and Coordination Capability

U.S. Space Command continues to develop partnerships with the U.S. Space Force and the Department of Commerce. As directed by the President in Space Policy Directive 3 and the United States Space Priorities Framework, civil and commercial space data sharing responsibilities will be led by the Department of Commerce. We also continue engagements with the broader interagency community and the civil and private sectors. These partnerships will endure and strengthen over time.

When the DoD began providing spaceflight safety data to global satellite operators in 2010, roughly 110 organizations flew a total of 890 satellites amidst a background of 21,000 pieces of trackable debris. Today, U.S. Space Command supports 680 organizations flying 7,500 satellites in all orbits. Two United States commercial companies have produced more than half of those 7,500 satellites currently on orbit. Since U.S. Space Command's inception in 2019,

trackable debris has increased sixty percent from roughly 25,000 pieces to more than 40,600 pieces. The transformation of space architectures and economics, and the dramatic short-term increase in debris, highlight that space congestion will be the norm moving forward. Other countries could also grow their space operations, highlighting that a more comprehensive and sustainable approach is required for space operations and spaceflight safety coordination.

Human Space Flight Support Improvements

As the DoD lead for human space flight support, U.S. Space Command has a close and vibrant relationship with the National Aeronautics and Space Administration (NASA). Our most visible effort is the preparation for the terrestrial rescue, recovery, and retrieval of astronauts and spacecraft. U.S. Space Command and NASA also partner on issues such as space domain awareness, in-space and on-orbit applications and manufacturing, planetary defense, and hypersonic technology.

U.S. Space Command is fully committed to NASA's human space flight program. This crucial partnership will deepen as NASA's Artemis operations expand, the U.S. returns to the moon, and exploration and development of cislunar space continues.

National Reconnaissance Office and Commercial Integration Strategy

U.S. Space Command continues our exceptional working relationship with the National Reconnaissance Office (NRO) and other intelligence community (IC) Partners. This relationship improves our ability to gain actionable intelligence, establish priorities, and provide global support to the rest of the Joint Force. We developed a comprehensive operational deconfliction process with the NRO and IC that enables seamless integration while delivering combined space effects for contingency operations.

U.S. Space Command has developed a Commercial Integration Strategy to advance collaboration, synchronize integration, and expand partnerships with U.S. commercial industry. The Combined Joint Commercial Integration Office ties together commercial stakeholders across the spectrum and drives implementation of this strategy.

The Command leverages commercial space domain awareness data through our Joint Task Force-Space Defense Commercial Operations cell (JCO). The JCO provides operationally relevant commercial space domain awareness to the National Space Defense Center. We are rapidly moving toward around-the-clock JCO operations to optimize information sharing between Allies and commercial Mission Partners.

The Command also leverages commercial ISR, space domain awareness, and SATCOM through the Combined Forces Space Component Command's Commercial Integration Cell (CIC). The CIC works with industry through mutually beneficial collaborative partnerships. As the CIC continues to attract commercial Mission Partners, U.S. Space Command can share SSA data with these additional commercial providers across multiple classification domains.

BUILDING AND MAINTAINING COMPETITIVE ADVANTAGE

Our competitors have counterspace capabilities and military doctrines that extend their concept of warfighting to space. Consequently, we must develop and field capabilities to contribute to integrated deterrence in accordance with the National Defense Strategy. U.S. Space Command identified five priority requirements to accomplish the responsibilities assigned by the Unified Command Plan (UCP). These include: (1) Integrated Space Fires and Protection, (2) Resilient, Timely Space C2, (3) Enhanced Battlespace Awareness, (4) Space Systems Cyber

Defense, and (5) Resilient Satellite C2 Architecture. Additionally, rapid investment in Global Sensor Management, Persistent and Resilient ISR, Operational Intelligence, Modernized and Agile EW Architecture, and Electromagnetic Battle Management will underpin long term success of our protect and defend mission. Relentless pursuit of these key integrated requirements will ensure we remain the dominant force in the space domain.

Integrated Space Fires and Protection Capabilities

Every day, civilians and the Joint Force depend on U.S. space capabilities. To assure the critical services provided by these capabilities, the DoD must have the infrastructure to deter aggression and protect these capabilities from attack. Resiliency is fundamental, but resiliency alone will not deter attacks or provide protection sufficient to assure our space assets. For U.S. Space Command to protect and defend U.S. and, as directed, Allied, Partner, and commercial space assets such as PNT, communications and missile warning/missile tracking, we require Congress' continued investment in joint military space capabilities, resilient architectures, and protection efforts.

Resilient, Timely Space C2

Resilient, timely C2 is key to deterring and defeating hostile action in space and terrestrially. Rapid and robust communication between space activities, space assets, and partner combatant commands enables decisive action. The increasingly dynamic space environment requires a resilient C2 architecture to synchronize space forces and effects for both operations in the contested space environment and as a critical enabler to traditional terrestrial maneuver forces. Congress's investment in the Combined Space Operations Facility addresses that need and will remain critical moving forward.

Enhanced Battlespace Awareness

U.S. Space Command relies on a near-real time, comprehensive understanding of the congested and complex space operational environment. Space domain awareness data, C2 automation, and machine learning allow us to better understand the threat in U.S. Space Command's astrographic area of responsibility (AOR). This critical task requires more accurate, robust, resilient, and timely space domain awareness and operational intelligence data from all interoperable sensors. This will produce highly accurate, rapidly available detection, tracking, and characterization of space objects, regardless of their origin. Current space domain awareness systems are stove piped, disaggregated, and lack the agility necessary for dynamic tasking. U.S. Space Command, the Missile Defense Agency, and the U.S. Space Force are partnering to enhance sensor integration into a C2 program. Congress' funding of programs to enhance battlespace awareness is crucial to ensuring U.S. Space Command can best protect and defend our vital space assets rapidly and dynamically.

Space Systems Cyber Defense

Digital superiority is key to building and maintaining a competitive advantage. The PRC, Russia, and other cyber actors are tirelessly working to infiltrate our cleared defense contractor, academic, and military networks. These adversaries seek to monitor and exfiltrate data, and reduce, degrade, and deny our ability to command, control, and communicate with on-orbit space assets and supporting ground systems.

Loss or compromise of U.S., Allied, or Partner space systems degrades the Command's ability to conduct operations in and through space and support terrestrial operations around the globe. Much of the digital infrastructure for these space mission systems requires modernization. As our adversaries' cyber capabilities are evolving, we need our defensive cyber systems to

outpace their growth. We need to be agile and find ways to become more resilient. We continue to collaborate with U.S. Cyber Command, Combat Support Agencies, and other government partners to deploy and integrate defensive cyber systems and tactics to maintain safe, secure, and reliable network operations.

The Command's Joint Cyber Center continues to partner across the DoD and with the Department of Homeland Security to prioritize cyber defense efforts. Increased funding for cybersecurity systems, persistent defensive cyber capabilities, and cyber experts is critical to maintaining dominance in the space and cyber domains.

Resilient Satellite C2 Architecture

U.S. Space Command seeks to improve resiliency in our globally dispersed ground terminal architecture and the Satellite Control Network (SCN). The current SCN system and follow-on architecture must be hardened and modernized to be able to fight through a highly contested environment. Mobile assets fielded with emerging technology to augment our global ground C2 centers will increase resiliency and underpin achieving national security objectives. U.S. Space Command has several requirements for the Joint Space Communication Layer (JSCL), which is the space transport layer of the DoD Information Network for SATCOM. For example, it must be scalable to meet the growing military and commercial SATCOM demand and operationally flexible enough to respond to adversary threats. Further, the JSCL must be interoperable with Allied and Partner systems to synchronize communications in a rapidly changing, multi-domain environment.

Force Development

U.S. Space Command's most important asset is our people. We are rapidly onboarding and developing a very talented team of space professionals. Our strategic advantage comes

through the diversity of experience and wisdom of our workforce. U.S. Space Command professional development programs boost our military promotion rates and our civilian employees' advancement potential. As our military members rotate out of the command and return to their parent service units, they bring invaluable space expertise back to the broader Joint and Combined Force. We visit colleges and universities to recruit recent graduates for civilian internships and job opportunities. We continue to advocate for hiring efficiencies that allow us to rapidly hire and onboard civilian employees. We recently established a command Academic Engagement Enterprise to partner with universities across the country to enhance workforce professionalization and improve U.S. Space Command's engagement in that critical space. We have full-time civilian advisors dedicated to building workforce resiliency and preventing discrimination, sexual assault, and harassment in the workplace to ensure our workforce remains empowered to reach its full potential.

As of 1 January 2023, we have 62 percent of our authorized military and government civilian end strength in place. If we include our contractor workforce, that number rises to 82 percent, a significant achievement three years into the command's five-year programmed manpower growth plan.

Resilient Space Architecture and Rapid Reconstitution

Over the last five years, the threats to our space enterprise systems have increased. We must modernize our space enterprise to ensure resiliency and agility and to preserve freedom of action despite these advancing threats. The ability to rapidly reconstitute requires us to prioritize seamless integration between old and new space capabilities (such as networks, space assets, links, and ground systems). This is essential to optimizing our data collection, processing, exploitation, and dissemination. U.S. Space Command is conducting a series of review efforts to

examine the resiliency of the space enterprise. We are identifying strengths and weaknesses of our current architecture, challenges to interoperability, and current policy limitations inhibiting shared space domain awareness. We are examining end-user interfaces, terrestrial systems, and communications links to orbital assets. In collaboration with the U.S. Space Force, our Allies, and Partners, U.S. Space Command is developing the requirements for a modern, integrated space architecture capable of operating in an increasingly contested space environment.

Dynamic Space Operations

Over the last five years, explicit and implicit threats to our on-orbit assets have increased. To preserve freedom of action, we must relentlessly pursue a new concept of employment - Dynamic Space Operations (DSO). Maneuvers by our current space systems are constrained by the fixed quantity of consumable resources on-board. This forces space warfighters to balance use of on-board resources to mitigate or counter current threats against the risk of insufficient resources to respond to future challenges.

Dynamic Space Operations includes the ability to restore consumables of on-orbit platforms or rapidly replace the platforms themselves. DSO will enable space operators to quickly respond to adversary operations, support readiness campaigns, and engage in self-defense, with less concern for future use implications. It will enable expanded multi-mission operations with less risk of depleting those limited consumables and mission capabilities. DSO will dramatically increase our ability to support geographic combatant commanders' operational requirements across the entire spectrum of competition, crisis, and conflict. Programs are underway within the DoD, the national laboratories, and across industry to address the technological challenges associated with DSO. U.S. Space Command is actively engaged with developmental efforts and working groups like the In-space Servicing Assembly and

Manufacturing Interagency Working Group. Our near-term DSO objective is to conduct an on-orbit demonstration to restore a satellite's maneuver capability by 2026. Our longer-term objective is to develop the necessary mission requirements and technical standards to ensure most capabilities delivered beyond 2030 will not be limited by consumables. We ask for Congress' support for these vital efforts as we develop and secure these crucial capabilities. Freedom to maneuver in space without concern for limiting future maneuverability will be an important capability for systems that are survivable against threats.

Maintenance and Hardening of Critical Infrastructure

U.S. Space Command's assigned AOR begins at an altitude of 100km – roughly 62 miles – above the surface of the Earth and extends indefinitely. Our operating domain extends around the globe and encompasses all three segments of our space systems: on-orbit assets, ground stations, and the cyber links connecting them. Updates to the ground segment are required to ensure our satellites can provide mission-critical information to the Joint Force and national decision makers. For example, our missile warning mission relies heavily on ground-based radar systems that require reliable power and cooling systems. Many of the facilities and infrastructure supporting U.S. Space Command exceed 60 years of service. It is increasingly difficult to maintain the necessary infrastructure for our assets to guarantee the resiliency, survivability, and endurability required for our critical space missions. Stop-gap measures are increasingly ineffective due to the lack of replacement parts and the inordinate time required to make repairs. We must modernize our aging infrastructure to keep pace with our competitors. I am grateful for Congress' continued support to ensure these facilities adequately support U.S. Space Command's no-fail missions.

Commercial space systems provide essential capabilities to our national security and civilian life. U.S. Space Command works with interagency and commercial space system stakeholders through the Critical Infrastructure Partnership Advisory Council to improve the security, resilience, and cybersecurity of commercial space systems.

At our provisional headquarters in Colorado Springs, the DoD has invested in existing on-installation facilities and off-installation federally leased buildings to meet U.S. Space Command requirements. Our provisional facilities on Peterson Space Force Bases are 30 years old. We accomplished major building system upgrades and repairs to meet mission requirements (such as power, communication/technology, and cooling). U.S. Space Command's provisional headquarters in Colorado Springs supports 1,230 personnel with the required communication, technology, and capabilities and will support full operational capability.

Exercises

U.S. Space Command executes the Presidentially assigned UCP responsibility for Joint Space Operations Training. As such, the Command is integrating joint and combined space scenarios and training across the Joint Force. We will conduct two mission centric exercises in FY23 as building blocks to a full-scale Tier 1 exercise in FY24 to emphasize the key transitions from competition through crisis and into conflict. This will highlight both the supported and supporting relationships between U.S. Space Command and the other combatant commands that will enable the Joint Force to overcome anti-access, area denial strategies.

Joint Warfighting Requirements

To maintain momentum, U.S. Space Command is developing joint warfighting requirements. We will continue to rely on the Services to contribute solutions that mitigate the capability gaps identified in these requirements.

Joint Space C2

The Joint Space C2 requirement established a set of threat-based requirements defining what the Command requires to comprehensively C2 forces across all mission areas. This includes deploying and connecting worldwide sensors and systems to national decision makers and all combatant commanders in near real time.

Space Effects to the Warfighter

To ensure space and space-enabled capabilities are available during conflict, U.S. Space Command is defining how to protect and defend space capabilities to guarantee space effects to the rest of the Joint Force. The Department will respond to hostile acts in space at the time, place, and domain of our choosing.

EW/Offensive Cyberspace Operation

U.S. Space Command is defining the required capabilities to integrate EW and offensive cyberspace operations. Close coordination with U.S. Cyber Command will enable joint fires to protect the space and cyberspace scheme of maneuver and provide the warfighting effects necessary to protect the rest of the Joint Force from adversary hostile uses of space.

Navigation Warfare (NAVWAR)/PNT

This NAVWAR/PNT requirement establishes the requirements that will inform future capability development by the services. This requirement is the initial step to informing the way the Joint Force, Allies, and Partners will keep pace with an advancing adversary threat. It will support the modern warfighter with scalable NAVWAR capabilities, integrate with our partners, and support a redundant and resilient NAVWAR/PNT architecture.

CONCLUSION

U.S. Space Command is rapidly approaching full operational capability. I am exceptionally proud of the progress the Command has made over the last three and a half years. There is no combatant command, warfighting domain, nor element of national power that is not strengthened by the space capabilities and effects that U.S. Space Command provides or protects. I am grateful to Congress for your support that has enabled our success. I ask for your continued support for the necessary resourcing to ensure we maintain our competitive advantage in the increasingly contested space domain.

We will continue to grow our critical network of Allies and Partners to integrate joint military space power into all-domain global operations to deter aggression, defend national interests, and when necessary, defeat threats. On behalf of the most critical asset in our command, the Soldiers, Marines, Sailors, Airmen, Guardians, civilians, and families of U.S. Space Command, thank you for your support to our mission.

General James H. Dickinson
Commander, U.S. Space Command

U.S. Army General James H. Dickinson assumed duties as the Commander, U.S. Space Command, on Aug. 20, 2020, after most recently serving as the first Deputy Commander of U.S. Space Command, the 11th and most recently established unified combatant command.

He is a native of Estes Park, Colorado, and a graduate of Colorado State University. He holds a Bachelor of Science in Mechanical Engineering and a Master of Science in Operations Research and Systems Analysis from the Colorado School of Mines. He later earned a master's degree in Strategic Studies from the United States Army War College.

Gen. Dickinson's command assignments include Commanding General of the Space and Missile Defense Command/Army Forces Strategic Command and Joint Functional Component Command for Integrated Missile Defense; Commanding General of the 32nd Army Air and Missile Defense Command; Commanding General of the 94th Army Air and Missile Defense Command; Brigade Commander of the 35th Air Defense Artillery Brigade, Eighth U.S. Army, Republic of Korea; and Battalion Commander of 1st Battalion, 7th Air Defense Artillery, which deployed in support of Operations Enduring Freedom and Iraqi Freedom.

His key staff assignments include Chief of Staff, U.S. Strategic Command; Director for Test at the Missile Defense Agency; Deputy to The Inspector General, Office of the Secretary of the Army; Deputy Director for Operations, National Military Command Center, J-3, Joint Staff; Chief, Commander's Initiatives Group, United Nations Command/Combined Forces Command, Republic of Korea; Assistant Chief of Staff, G-3, 32nd Army Air and Missile Defense Command; Senior Emergency Actions Officer and Senior Operations Officer, National Military Command Center, J-3, Joint Staff; Operations Officer, 11th Air Defense Artillery Brigade; Operations Officer, 5th Battalion, 52nd Air Defense Artillery, 11th Air Defense Artillery Brigade supporting Operation Southern Watch.

Gen. Dickinson is the senior Air Defense Artillery Officer in the U.S Army. His awards and decorations include the Defense Distinguished Service Medal, two Distinguished Service Medals, three Defense Superior Service Medals, three Legion of Merits, Bronze Star Medal, Defense Meritorious Service Medal, three Meritorious Service Medals, three Army Commendation Medals, Joint Service Achievement Medal, four Army Achievement Medals, Parachutist Badge, Master Space Badge and Joint and Army Staff Identification Badges.

August 2020

HOUSE ARMED SERVICES COMMITTEE ON STRATEGIC FORCES

STATEMENT OF

ANTHONY J. COTTON

COMMANDER

UNITED STATES STRATEGIC COMMAND

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE ON STRATEGIC FORCES

8 MARCH 2023

HOUSE ARMED SERVICES COMMITTEE ON STRATEGIC FORCES

INTRODUCTION

United States Strategic Command (USSTRATCOM) is a global warfighting combatant command (CCMD). Our mission is to deter strategic attack and employ forces, as directed, to guarantee the security of our Nation and our Allies. Our people are the greatest enablers of this security, and it is my privilege to lead the Soldiers, Sailors, Marines, Airmen, Guardians, and Civilians who dedicate themselves to this mission 24 hours a day, 365 days a year. I want to thank the President, Secretary of Defense, and Chairman of the Joint Chiefs for their confidence in me to lead this command. I also thank Congress for your continued support to ensure that USSTRATCOM has the resources necessary to meet our critically important mission. We remain ready to face the complex deterrence challenges of today's global security environment while positioning the command for the future.

USSTRATCOM is responsible for strategic deterrence; nuclear operations; nuclear command, control, and communications (NC3) enterprise operations; joint electromagnetic spectrum (EMS) operations (JEMSO); global strike; missile defense; analysis and targeting; and missile threat assessment. These responsibilities will grow in prominence as we face the challenges identified in the National Defense Strategy (NDS): strategic competition with the People's Republic of China (PRC), Russia as an acute threat, threats to the U.S. homeland, and complex escalation dynamics.

To meet these rapidly evolving challenges, the United States must provide a combat ready force able to deter any adversary, and if necessary, fight and win. While the command stands ready to execute its mission today, we need consistent, stable, and on-time Congressional funding to sustain and modernize the nuclear enterprise. This will ensure our ability to pace current and future threats by providing capabilities to deter through the spectrum of conflict.

Over the past decade, a cycle of continuing resolutions and late appropriations has hindered the Department's acquisitions, operations, and maintenance. As both the Chief of Staff of the Air Force and Chief of Naval Operations testified in 2022, continuing resolutions and late appropriations cost us time and money, causing potential delays in modernizing the nuclear enterprise and Joint Force.

The nuclear triad is the foundation of U.S. national security, and I thank Congress for fully funding our modernization programs: Sentinel intercontinental ballistic missile (ICBM), COLUMBIA-class submarine, D5 submarine launched ballistic missile (SLBM) second life extension and modernization (D5 LE2), B-21 Raider bomber, and Long Range Standoff (LRSO) cruise missile. In addition to these systems, the U.S. must continue investment in sustainment of current systems and critical capabilities that support and complement the nuclear triad. These include nuclear weapons infrastructure overseen by the National Nuclear Security Administration (NNSA), NC3, nuclear security, and long-range conventional strike capabilities such as hypersonic weapons (HSWs). Alongside capability is capacity. We must expand our critical munitions stockpiles while working with manufacturers to make the defense industrial base as responsive as possible.

OUR PEOPLE

The greatest strength of USSTRATCOM is its people. Like the rest of the Department, our workforce is aging out and we are in a fierce competition for talent. My goal is to help personnel currently assigned to the command maximize their potential while continuing to attract capable individuals. USSTRATCOM is committed to deliberate development opportunities and career broadening. These opportunities include strategic deterrence education programs, and a strategic leader fellowship program. Additionally, we are committed to maintaining an inclusive

environment where people are valued as well as fostering quality of life improvements for the military and civilian workforce. Finally, the need to fully recapitalize our nuclear enterprise has an important people component—as our systems continue to age, their increasing maintenance requirements fall squarely on our dedicated team of Service Members and Civilians.

We have an amazing team serving both in and out of uniform to protect our country. Investing in people yields dividends for national security. There are serious challenges with the production capacity of the defense industrial base, and to help mitigate this I encourage Congress to look at ways to increase the number of STEM (science, technology, engineering, and mathematics) and skilled trade workers throughout the U.S. work force.

GLOBAL SECURITY ENVIRONMENT

For the first time in our country's history, the United States faces two major nuclear powers, the PRC and the Russian Federation, which have the capability to employ nuclear coercion as a way to achieve their national objectives. Russia presents a growing nuclear deterrence challenge centered on its potential perception that the threshold for regional nuclear employment is lower with low-yield systems. The PRC is also developing capabilities that would present a similar deterrence challenge, and it is unconstrained by any nuclear arms control treaty limitations. Additionally, the activities of the Democratic People's Republic of Korea (DPRK) are regionally destabilizing and have global implications.

In the longer term, emerging technologies—including HSWs, fractional orbital bombardment (FOB) capabilities, anti-satellite capabilities, artificial intelligence (AI), autonomous systems, advanced computing, quantum information sciences, biotechnology, and advanced materials and manufacturing—pose a growing challenge to our national defense.

Meeting these near-term and longer-term threats requires a globally focused national strategy and commitment that spans decades.

People's Republic of China

As the NDS states, the PRC is our most consequential strategic competitor and pacing challenge; its significant nuclear force expansion reflects an increasing assertiveness and the capability to employ nuclear coercion. The PRC's rapid qualitative and quantitative expansion of military capabilities enables a shift in its strategy and requires the Department of Defense (DoD) to make immediate and significant alterations to plans and capabilities. The PRC is aggressively pursuing their global ambitions through a national strategy of "Military-Civil Fusion"—a comprehensive focus on advancing civilian research to develop and then apply new technologies towards military and defense innovations. For example, the PRC's development and construction of fast breeder reactors and reprocessing facilities allows the swift expansion of its warhead manufacturing capacity. The PRC believes that its robust nuclear weapons program is essential to counter the U.S. in the near future in order to achieve what its leaders have deemed "great power status."

Correspondingly, the PRC seeks to match, or in some areas surpass, quantitative and qualitative parity with the United States in terms of nuclear weapons. The PRC's nuclear capabilities already exceed those needed for its long-professed policy of "minimum deterrence," but PRC capabilities continue to grow at an alarming rate. Additionally, the PRC is making substantial investments to expand its inventory of land-, sea-, and air-based nuclear delivery platforms and is constructing the infrastructure necessary to support the significant expansion of its nuclear forces. Notably, the PRC is developing capabilities inconsistent with its historical minimum deterrence posture.

Within the past three years, the PRC has built hundreds of new ICBM silos, further indicating a move away from a minimum deterrence posture. The PRC's three new missile fields collectively provide it with more than 300 silos. Each of these silos can be equipped with the CSS-10 Mod 2 ICBM, which is capable of ranging the continental United States (CONUS) with multiple independently targetable reentry vehicles (MIRVs). Additionally, the PRC maintains other ICBMs, some of which are road-mobile. Unconstrained by arms control treaty limitations, the PRC is fielding a new generation of mobile missiles, with MIRV and penetration aid capabilities. The PRC's most modern road-mobile and MIRV-capable ICBM advanced from concept to deployed system in only a few years. The PRC is now projected to have over 1,000 warheads by the end of this decade. In accordance with statutory requirements, I recently reported to Congress that the number of land-based fixed and mobile ICBM launchers in the PRC now exceeds the number of ICBM launchers in the U.S.

Just like the ground leg, the air and sea legs of the PRC's nuclear triad are now armed with newly developed weapon systems. The air-refuelable H-6N bomber is armed with new nuclear-capable cruise missiles and air-launched ballistic missiles that may be nuclear capable, and the PRC is building a new stealth strategic bomber with global reach. The PRC's six JIN-class ballistic missile submarines (SSBNs) are now being equipped with the new third-generation JL-3 SLBM capable of ranging CONUS. PRC strategists also highlight their country's perceived need for lower-yield nuclear weapons. Significantly, the PRC's investment in lower-yield, precision systems with theater ranges points to investment in asymmetric capabilities that could be employed coercively during an escalation crisis, similar to Russia's irresponsible nuclear saber-rattling during its war against Ukraine. This presents the U.S. with a deterrence challenge that must be addressed with a range of U.S. capabilities, both conventional and nuclear. The

PRC currently has an arsenal of approximately 1,000 medium- and intermediate-range ballistic missiles, many of which are dual capable (i.e., able to be armed by either conventional or nuclear warheads) and able to inflict significant damage to U.S., Allied, and partner forces in the Indo-Pacific.

The PRC's 2021 test of a hypersonic glide vehicle (HGV) with FOB capability exemplifies its pursuit of weapons systems with implications for strategic stability. FOB systems use a low earth orbit to deliver a warhead most of the way to its target destination, deorbiting just before reaching its target. These systems represent a more challenging threat because their non-ballistic trajectories complicate missile detection and tracking, and degrade the target country's ability to characterize the scale of an attack.

The trajectory of the PRC's nuclear advancements points to a large, diverse nuclear arsenal with a first-strike offensive capability and a high degree of survivability, reliability, and effectiveness. When considered in the context of its heavy investment in NC3, as well as increased readiness, the PRC's nuclear modernization highlights emergent capabilities that could provide it with a spectrum of first-strike offensive options before and during a crisis or conventional conflict. The PRC may believe that nuclear weapons represent a key component of its counter-intervention strategy and could use these weapons coercively against our Nation, Allies, or partners.

Russian Federation

Russia's brutal invasion of Ukraine is a violent attempt at territorial seizure that aims to undermine the rules-based international order with conventional force backed by nuclear coercion. Russia's nuclear rhetoric is underpinned by its nuclear arsenal, which is the largest and most diverse in the world. Russia continues to flight test its new heavy ICBM, the SS-X-29

Sarmat, with plans to begin fielding it in 2023 and eventually replace the legacy SS-18 heavy ICBM. With Sarmat, Russia joins the PRC in developing ICBMs that use at least partial orbital trajectories. Russia also continues to field new DOLGORUKIY-class SSBNs, armed with the new SS-N-32 Bulava SLBM, and SEVERODVINSK-class nuclear-powered cruise missile submarines.

Russia's significant investment in launch platforms and systems not subject to the New START Treaty (NST) provides it with increasingly diverse and flexible nuclear deterrence options. Russia now fields nuclear-capable hypersonic systems such as the Avangard HGV, the Tsirkon land-attack cruise missile, and the Kinzhal air-launched ballistic missile, the last of which Russia has employed in Ukraine with conventional warheads. Russia also has a stockpile of approximately 2,000 theater nuclear weapons that does not fall under the limits established by the NST.

The continued degradation of Russian conventional capability in Ukraine will likely increase Russia's reliance on its nuclear arsenal. This phenomenon, along with the PRC's rapid breakout and development of capabilities that present a similar deterrence challenge, underscores the increased perceived utility of nuclear weapons in the contemporary environment. The U.S. faces a complex, multipolar nuclear world that requires concerted U.S. effort to address these deterrence challenges, strengthen assurance to our Allies and partners, and prevent proliferation.

Democratic People's Republic of Korea

The DPRK, an increasing security challenge to the U.S. and our Allies, is capable of striking regional Allies with nuclear weapons and is an emerging threat to CONUS. The DPRK's advancing missile and nuclear programs are destabilizing and highlight the critical role of USSTRATCOM's deterrence and assurance mission.

The DPRK's nuclear-capable ballistic missile research and development has continued with an unprecedented number of missile launches in 2022. The DPRK's continued development of ICBMs, SLBMs, and Intermediate Range Ballistic Missiles demonstrates its intention to bolster its nuclear delivery capability. The DPRK is also developing new capabilities such as HSWs and MIRVs, and its new Hwasong-17 ICBM has the potential to reach CONUS. The DPRK is also diversifying launch platforms, and has tested rail, submarine, and ground-mobile missiles. These advancing nuclear capabilities place pressure on Allied faith in our extended deterrence commitments. The DPRK illustrates that nuclear and weapons of mass destruction threats to the U.S. and our Allies are not limited to the PRC and Russia.

INTEGRATED DETERRENCE

We are addressing these threats through integrated deterrence. As the NDS articulates, integrated deterrence spans all domains and capabilities and is backstopped by a safe, secure, and effective nuclear deterrent. USSTRATCOM's role, however, is not limited to nuclear plans and operations. USSTRATCOM's mission, to deter strategic attack—not just nuclear attack—against our Nation and Allies, includes many components. Correspondingly, our new concepts and plans must account for nuclear, long-range conventional, space, electromagnetic spectrum, and cyberspace capabilities. Crucially, DoD's plans must integrate all capabilities across the spectrum of conflict.

USSTRATCOM also plays a vital role in assuring Allies and partners. The North Atlantic Treaty Organization (NATO) calls the strategic forces of the Alliance, particularly those provided by the U.S., "the supreme guarantee of the Alliance's security." In the Indo-Pacific, our Allies similarly acknowledge the importance of our strategic deterrent. Examples of

operations and activities include U.S. bomber operations with Allies, SSBN port visits, and exercises such as Steadfast Noon, NATO's annual nuclear exercise.

The war in Ukraine, combined with the PRC's rapid nuclear arsenal expansion and the DPRK's growing nuclear capabilities, will likely make longstanding U.S. nonproliferation goals more challenging. For 70 years, U.S. extended deterrence commitments have functioned as one of the most important factors limiting the proliferation of nuclear weapons. In the current environment, the credibility of U.S. extended deterrence commitments is even more vital to nuclear nonproliferation goals. Critically, there must be no perception of a threshold below which an adversary may believe it could employ nuclear weapons, such as non-treaty accountable, lower-yield, theater weapons, to obtain a benefit.

WHAT USSTRATCOM NEEDS TO ACCOMPLISH ITS MISSION

I urge Congress, the Department, and the Services to sustain their decades-long support for critical national security capabilities, including the infrastructure needed to support these programs. The recapitalization of our triad is a once in every-other-generation event that will ensure we have capable forces into the 2080s to defend the U.S. homeland and deter strategic attack globally. I am closely monitoring the transition of our major programs: OHIO to COLUMBIA, D5 LE to D5 LE2, Minuteman III to Sentinel, B-2 to B-21, Air Launched Cruise Missile (ALCM) to LRSO, and modernization of NC3 capabilities. It is essential to sustain our current platforms until new systems are at full operational capability. Correspondingly, we are coordinating with the Services on efforts to mitigate operational impacts should delays occur in the delivery timeline for new capabilities.

NUCLEAR COMMAND, CONTROL, AND COMMUNICATIONS (NC3)

The NC3 enterprise is essential to the President's ability to command and control the Nation's nuclear forces. Acknowledgement of this vital mission and the unique challenges facing NC3 modernization were the impetus behind the Secretary of Defense's establishment of my role as the DoD NC3 Enterprise Lead in 2018. With these responsibilities and authorities, we are taking a holistic enterprise approach to develop and deliver the next generation of NC3—a flexible, resilient, and assured architecture spanning all domains and enhancing strategic deterrence.

NC3 Next Generation / Modernization

The modernization of the NC3 enterprise underpins the nuclear triad and sustains assured command and control capabilities in the evolving threat environment. We are partnering with NC3 stakeholders in the Office of the Secretary of Defense and levying requirements on the Services to modernize all NC3 capability areas, integrating global nuclear forces with the means to provide strategic deterrence.

In the next five years, we will transition from Milstar to the Advanced Extremely High Frequency satellite constellation, gaining greater capacity, survivable worldwide NC3 reach, and the ability to provide direction to our forces in degraded environments. Our national leadership conferencing, currently using a voice-only legacy technology, will transition to voice and video displays. In our warning layer, we are moving away from the Defense Support Program and towards the Space Based Infrared System to maximize warning time. Efforts are already underway on our submarines, E-6B aircraft, and bombers to replace previous generation radios with improved systems that are more resilient to jamming and other electromagnetic effects.

In the next ten years, the launch and use of Next Generation Overhead Persistent Infrared geosynchronous and polar satellites will replace legacy systems with a space-based missile warning constellation to detect and track threats around the globe. The Space Development Agency's Proliferated Warfighting Space Architecture is aimed at building a constellation of satellites in low and medium earth orbit that can monitor maneuvering hypersonic missiles flying below the range of today's ballistic missile detection satellites and above the radar of terminal-phase targeting systems. These satellites will complement other efforts to detect and track maneuvering hypersonic missiles that are difficult targets for current missile warning capabilities. Finally, we will use polar satellite communications capability with the Enhanced Polar System Recapitalization program to provide message relay. Our submarines, E-6B aircraft, bombers, and missile fields will receive communication systems that increase survivability of weapon systems in a crisis situation. We are focused on achieving our vision—a modernized NC3 enterprise that remains resilient, reliable, and available at all times and under the worst conditions.

NC3 Cybersecurity and Technological Improvements

We have confidence in our ability to protect, defend, and execute the nuclear deterrent mission. The resilience and redundancies of the systems comprising the Nuclear Command and Control System, combined with ongoing cybersecurity enhancements, ensure our ability to respond under adverse cyber conditions.

E-4B Nightwatch

The E-4B Nightwatch aircraft serves as the National Airborne Operations Center and is a key component of the National Military Command System for the President, Secretary of Defense, and Joint Chiefs of Staff. The E-4B recapitalization program—the Survivable Airborne

Operations Center—will serve as the next generation airborne command center platform. In case of national emergency or destruction of ground command and control centers, the aircraft provides a highly survivable command, control and communications center to direct U.S. forces, execute emergency war orders and coordinate actions by civil authorities. For these reasons, we must continue to develop and deliver this platform on time to prevent any capability gaps associated with this important national asset.

E-6B Mercury

The E-6B Mercury accomplishes two missions: Emergency Action Message (EAM) relay to all legs of the nuclear triad (Take Charge and Move Out/TACAMO) and an alternate USSTRATCOM command center providing EAM origination and ICBM secondary launch capability (Looking Glass). E-XX is the follow-on platform to the E-6B airframe and will execute the TACAMO mission only. In coordination with the Office of the Undersecretary of Defense for Acquisition and Sustainment and the Joint Staff, USSTRATCOM and the NC3 Enterprise Center are conducting an evaluation of alternatives (EoA) to consider all missions and platforms to deliver the Looking Glass capabilities currently performed by the E-6B. Recommendations from the EoA should be available by mid-summer. We must complete recapitalization by the E-6B's projected end of service life in FY38.

LAND-BASED TRIAD COMPONENT

The ICBM remains our country's most responsive option for strategic deterrence. The Minuteman III (MMIII) force provides a responsive, highly reliable deterrent capability, supported by a secure command and control system. Geographically dispersed ICBMs deny potential adversaries the possibility of a successful first strike.

MMIII's weapon system replacement, the LGM-35A Sentinel ICBM, will deliver MMIII's key attributes while enhancing platform security, streamlining maintenance processes, and delivering greater operational capability needed for the evolving threat environment. Sentinel's program scope and scale cannot be overstated—our first fully integrated ICBM platform includes the flight system, weapon system, C2, ground launch systems, and facilities. The Sentinel program is pursuing mature, low-risk technologies, design modularity, and an open system architecture using state-of-the-art model-based systems engineering. Sentinel will meet our current needs, while allowing affordable future technology insertion to address emerging threats. USSTRATCOM is actively supporting the Sentinel engineering and manufacturing development process and looks forward to the first Sentinel developmental flight test. Sentinel will deploy with numerous advantages over MMIII and will provide a credible deterrent late into this century. Sentinel fielding is a whole of government endeavor. We appreciate continued Congressional support, both for Sentinel and sustainment of MMIII.

SEA-BASED TRIAD COMPONENT

The Navy's OHIO-class SSBN fleet, equipped with the Trident II D5 SLBM, patrols the world's oceans undetected, providing an assured second strike capability in any scenario. Our SSBN fleet continues to provide a resilient, reliable, and survivable deterrent. However, the life of the OHIO-class SSBN fleet has been extended from a planned 30 years to an unprecedented 42 years. The average age of the SSBN fleet is now 32 years. As the hulls continue to age, the OHIO-class will face sustainment and readiness challenges until it is replaced by the COLUMBIA-class. Similar to Minuteman III, we must maintain OHIO-class hulls until the COLUMBIA is available. The Navy has already invested in the Integrated Enterprise Plan to shorten construction timelines for COLUMBIA hulls two through twelve to meet

USSTRATCOM at-sea requirements. Continued investment in revitalizing our shipbuilding industry is a national security imperative.

The first COLUMBIA-class submarine must achieve its initial strategic deterrent patrol in FY31 with an initial loadout of D5 LE missiles and a steady transition to the D5 LE2. The program of record delivers at least twelve SSBNs—the absolute minimum required to meet sustainment requirements. A life-of-hull reactor and shorter planned major maintenance periods are intended to deliver greater operational availability. COLUMBIA will deliver improved tactical and sonar systems, electric propulsion drive, and advanced hull coating to maintain U.S. undersea dominance.

The Trident II D5 LE2 program will field a modern, reliable, flexible, and effective missile capable of adapting to emerging threats and is required to meet COLUMBIA-class SLBM loadout requirements. Stable funding for D5LE2 is vital to maintaining program benchmarks and ensuring a viable SSBN deterrent through the 2080s. COLUMBIA's ultimate success depends on a missile that is both capable and flexible.

Additionally, shore infrastructure readiness is fundamental to supporting current OHIO-class SSBN and future COLUMBIA-class SSBN operations. Provision of military construction and operation & maintenance funding facilitates the Navy's modernization of shore infrastructure supporting the nuclear deterrence mission. One immediate example is the modernization and expansion of the SSBN training and maintenance facilities in Kings Bay. These facilities are critical for maximizing the combat readiness of SSBNs and their crews daily, requiring a commitment to multiple years of funding.

Anti-Submarine Warfare

Anti-submarine warfare threats continue to evolve. The Navy's Integrated Undersea Surveillance System (IUSS) provides vital information concerning adversary submarine and surface ship operations, enabling U.S. forces to maintain favorable tactical and strategic positions while supporting deterrent patrol operations. Surveillance performed by IUSS also provides the theater undersea warfare commander situational awareness required for maritime defense of the homeland. Advances in adversary submarine stealth underscore the importance of IUSS recapitalization.

Our submarines are formidable weapon systems; however, we must address potential adversaries' anti-submarine warfare advances to maintain an effective and viable SSBN fleet well into the future. Adversary investments in submarine quieting, acoustic arrays, and processing capabilities may challenge our acoustic superiority in the future and consequently, SSBN survivability. Development and employment of advanced sonar sensors, advanced materials science and coatings, and other efforts within the Navy's Acoustic Superiority Program are vital to maintain our undersea advantage.

AIR-BASED TRIAD COMPONENT

The bomber fleet is our most flexible and visible leg of the triad. We are the only country with the capability to provide long-range bombers in support of our Allies and partners, enabling the U.S. to signal resolve while providing a flexible option to de-escalate a conflict or crisis. In a force employment model known as the Bomber Task Force (BTF), USSTRATCOM supports global deterrence and assurance objectives. BTFs allow dynamic employment of the Joint Force and clear messaging as potential adversaries watch these missions closely. As bombers conduct missions throughout the globe, they enhance national objectives by demonstrating unity with

Allies and partners, and testing interoperability. As a complement to the Air Force's Agile Combat Employment (ACE) concept, we must consider increasing forward-based maintenance capability to support persistent, episodic global presence while retaining the ability to increase nuclear readiness posture as needed. As we sustain legacy systems and field new capabilities, it will be important to invest in bomber support forces and infrastructure to adequately sustain flexibility and effective nuclear deterrence posture.

B-52H Sustainment

The B-52H continues on as the workhorse of our bomber fleet. The B-52's longevity is a testament to its engineers and maintenance professionals, but it must be modernized to remain in service into the 2050s. Essential B-52 upgrades include the Commercial Engine Replacement Program (CERP), Radar Modernization Plan, global positioning system military code signal integration, and survivable NC3 communications equipment. These improvements will keep the B-52 flying and able to pace the evolving threat. CERP will replace the B-52's 1960s-era TF-33 engines, which will enable longer unrefueled range, reduce emissions, and address supply chain issues afflicting the legacy engines. The B-52's very low frequency and advanced extremely high frequency modernization programs will provide mission critical, beyond-line-of-sight connectivity.

B-2 Sustainment

The B-2 fleet remains the world's only low-observable bomber, able to penetrate denied environments while employing a wide variety of munitions against high-value strategic targets. The DoD must protect this unique operational advantage as the Air Force transitions from the B-2 to the B-21 fleet. Successful transition requires full funding for B-2 sustainment and modernization programs until the B-21 completes development and certification for both

conventional and nuclear missions, and is fielded in sufficient numbers to preclude any capability gap.

B-21

The B-21 Raider will provide both a conventional and nuclear-capable bomber supporting the triad with strategic and operational flexibility across a wide range of military objectives. The program is on track to meet USSTRATCOM operational requirements, and continues to successfully execute within cost, schedule, and performance goals. The B-21 will be the backbone of our future bomber force, providing a penetrating platform with the range, access, and payload to go anywhere needed in the world. Consistent funding of the Air Force's B-21 program is required to prevent operational shortfalls in the bomber force and ensure delivery of this critical combat capability.

Air-Delivered Weapons

The air-delivered weapons portfolio consists of the ALCM, the B83-1 gravity bomb, and the B61 family of weapons, providing a mix of standoff and direct attack munitions to meet near-term operational requirements. The ALCM provides current stand-off capability to the strategic bomber force, but is reaching its end-of-life. LRSO will replace the ALCM as our country's sole air-delivered standoff nuclear capability. It will provide the President with flexible and scalable options, and is capable of penetrating and surviving against advanced air defenses—a key attribute and important component in USSTRATCOM operational plans. The LRSO is complementary to the ICBM and SSBN recapitalization programs and an important contribution to strategic stability. The B61-12 will soon replace most previous versions of the B61, providing a modernized weapon with greater accuracy and increased flexibility. Finally, USSTRATCOM

is actively supporting the National Defense Authorization Act requirement to conduct a study on options to hold at risk hard and deeply buried targets.

Tanker Support

A robust tanker fleet is essential to sustaining global reach for all USSTRATCOM missions. The 65 year-old KC-135 is the backbone of the Air Force's air refueling force but is facing increasing maintenance and sustainment issues. Limited air-refueling aircraft increases bomber response timing and constrains bomber deterrence posture agility. Concurrent mission demands between strategic, theater, and homeland defense require continued tanker modernization and expansion efforts. USSTRATCOM fully endorses and supports the Air Force's effort to modernize and sustain the tanker fleet, including certification of the KC-46 to support the nuclear mission. A conflict with a peer adversary would put previously unseen demands on the tanker force.

WEAPONS INFRASTRUCTURE AND NUCLEAR SECURITY ENTERPRISE (NSE)

Today's nuclear weapon stockpile remains safe, secure, and effective. However, our country has not conducted a large-scale weapons modernization in over two decades. Stockpile and infrastructure modernization must ensure our systems are capable of pacing and negating adversary threats to our Nation, Allies, and partners. Over the past five years we have made significant investments in the NSE, but most programs take a decade or longer to field a meaningful capability.

The NNSA, as part of and informed by the Nuclear Weapons Council (NWC), has developed a comprehensive plan to put these identified capacities and capabilities in-place. When realized, it will enable our country to sustain and modernize the nuclear weapons stockpile to meet strategic deterrence needs. In the interim, I look forward to working with NNSA and

other NWC partners to find the best solutions to mitigate operational risks. I commend Congress for its support of the NNSA's budget for weapons activities for FY23. Stockpile and NSE programs can take a decade or more to deliver and will require consistent, uninterrupted funding to provide the needed capacities and capabilities on time to sustain and modernize the strategic deterrent force. We must continue to look for ways to accelerate our stockpile and NSE modernization and recapitalization programs.

As we shift focus beyond life extension to modernizing existing weapons and fielding new systems, we must overcome challenges that delay program execution. There are many NSE programs with just-in-time schedules or that are late-to-need, including pit production, uranium processing, and radiation case manufacturing. Failure to execute and deliver timely NSE modernization programs results in accumulation of operational risk by requiring the retention of aging weapons and components in the stockpile decades longer than intended. In FY22, the NSE took action on a number of issues impacting the readiness and modernization of the nuclear deterrent force. Some areas—for example, the W93, B61-12, and W88 Alt 370—saw progress, while others such as the W80-4 and W87-1 stockpile modernization programs are experiencing milestone delays and increased schedule risk. I look forward to working with NNSA and other NWC partners to improve our rates of success in these latter areas.

Production of essential components is a critical issue. NNSA has identified critical capability gaps affecting components essential for stockpile modernization. It is also vital that the NSE re-establishes a plutonium pit manufacturing capability of no less than 80 pits per year as close to 2030 as possible. Weapon production is a multi-decade task that must address current enterprise limitations as we simultaneously modernize the stockpile, infrastructure, and platforms while sustaining the current force until it can be replaced.

For over a decade, our adversaries have dedicated significant resources to modernizing and expanding their nuclear capabilities. As our systems continue to age, funding a modern stockpile, supporting infrastructure, and a robust science, technology, and engineering base is essential.

NUCLEAR SECURITY

Nuclear security continues to be one of my top priorities; we will commit the resources required to protect our fielded weapons, weapon platforms, and personnel. Adhering to the Nuclear Weapon Security Standard ensures denial of unauthorized access to nuclear weapons and prevents loss of custody. A defense-in-depth strategy starts at every nuclear weapon and builds outward with a cohesive design to deter, detect, delay, deny, and defeat security threats.

MH-139A Grey Wolf Replacement Helicopter

The Joint Force achieved a significant ICBM security milestone with the Air Force's award of a contract to replace the UH-1N helicopter fleet with the new MH-139A "Grey Wolf." The MH-139A offers enhanced speed, range, endurance, payload, and survivability versus the UH-1N. We will continue to work with the Services to deliver this capability.

Countering Small Unmanned Systems

The rapid proliferation and growing technological sophistication of small unmanned systems is an increasing threat to the nuclear enterprise. To counter the threat, the Department continues to field Counter-small Unmanned Aircraft Systems (C-sUAS) capabilities and is refining tactics, techniques, and procedures. Similarly, the advancement of unmanned surface and underwater vehicles may soon emerge as a threat to our SSBNs and supporting infrastructure, requiring a comprehensive force protection system to defend both pier-side and in-transit SSBNs.

Weapon Generation Facility (WGF)

As we modernize nuclear weapons and platforms, the Air Force will replace aging weapon storage areas with new WGFs which are vital to security, sustainment, and fielding of the Sentinel, B-21, and LRSO triad modernization programs, and their associated weapons. The Air Force will conduct weapon maintenance, storage operations, and (as required) weapons generation activities in a single reinforced WGF facility at each strategic base. This will further increase security, recapitalize aging infrastructure, and enhance efficiency throughout the mission. The WGFs are a critical part of the larger nuclear modernization effort and must be fully funded to deliver on time in support of each program of record delivery schedule.

JOINT ELECTROMAGNETIC SPECTRUM OPERATIONS (JEMSO)

Per the Unified Command Plan (UCP), CDRUSSTRATCOM is responsible for advocating for JEMSO and electromagnetic warfare capabilities, providing contingency electronic warfare support to other CCMDs, and supporting CCMD joint training and planning related to controlling the EMS. Potential adversaries understand our dependency upon the EMS and have developed technology to effectively contest our use of it. Additionally, increased civil and commercial use of spectrum bandwidth significantly congests the EMS and constrains DoD use. Multiple USSTRATCOM assessments have identified JEMSO readiness shortfalls, which are growing. Our adversaries have dramatically increased their offensive and defensive capabilities in recent years; the DoD must similarly improve our ability to operate in a degraded electromagnetic warfare environment.

We must continue to pursue a DoD-wide effort to achieve EMS superiority and mission success. To support the goals of the DoD EMS Superiority Strategy, USSTRATCOM is executing twelve assigned tasks, including establishing an organization, led by a 2-star, called

the Joint Electromagnetic Spectrum Operations Center (JEC). The JEC will lead execution of the eleven other USSTRATCOM assigned DoD EMS Superiority Strategy tasks. Additionally, USSTRATCOM has led development of JEMSO cells at other CCMDs to enable these functions. We are also working with the DoD Chief Information Officer to develop a software system for use by CCMD JEMSO cells in planning, coordinating, and controlling the EMS. Following multiple assessments from Northern Edge—USINDOPACOM's tier 1 exercise—USSTRATCOM is pursuing accreditation authorities for Joint Force EMSO readiness that will help close capability gaps. USSTRATCOM is also establishing an EMSO training and education capability to coordinate DoD EMS joint training, streamline training processes, and promote standardization.

MISSILE DEFENSE

Missile defense capabilities are a key part of integrated deterrence to deny our potential adversaries coercive abilities or the benefit of attacks against the homeland, Allies, and partners. The proliferation of missile technology and employment techniques designed to circumvent missile defenses demands a Department-wide missile defeat approach with continued investment in systems integration and collaboration with Allies and partners. This comprehensive approach uses the entire range of available activities to counter the development, acquisition, proliferation, and use of adversary offensive missiles of all types, as well as limiting damage from such use. An important element of this approach is integration of space- and terrestrial-based sensors for warning, attribution, and tracking of ballistic, maneuvering, hypersonic, cruise missile, and UAS threats to optimize the effectiveness of our limited inventory of kinetic interceptors. A comprehensive sensor architecture that gives commanders and civilian leaders situational awareness over all threats and incursions to our air and space domains is imperative.

Cruise missiles continue to offer adversaries ways to generate strategic effects. USSTRATCOM is working closely with NORAD/USNORTHCOM, USINDOPACOM, and USSPACECOM to explore capabilities to enhance homeland defense and deter attack. Additionally, the Missile Defense Agency, Services, and CCMDs continue to develop and field defenses that protect the homeland and deployed forces while reassuring and defending our Allies and partners. We are committed to improving the Ground-based Midcourse Defense system and developing the Next-Generation Interceptor to augment and potentially replace the Ground Based Interceptor.

HYPERSONIC WEAPONS

Long-range conventional hypersonic weapons will provide senior leadership additional strike options to hold distant and/or defended high-value, time-sensitive targets at risk without crossing the nuclear threshold. Conventional HSWs ensure long-range power projection in contested environments and enables more efficient and effective application of the nuclear force. While HSWs are not a replacement for nuclear weapons, these systems show promise as the conventional complement that the nuclear force needs to expand integrated deterrence options.

The ability to quickly strike defended targets at long range is an important capability that the Joint Force and multiple CCMDs require. Rapid development and fielding of conventional HSWs is a top USSTRATCOM priority. The goal of fielding the first offensive hypersonic strike system is on the horizon with the Army scheduled to field a Long-Range Hypersonic Weapon battery in late 2023, followed by the Navy Conventional Prompt Strike program beginning in the mid-2020s. The Air Force has demonstrated successes in the Air-launched Rapid Response Weapon program and hypersonic cruise missile technology pathfinder efforts. A robust scientific and industrial base is vital to ensure that HSWs are fielded in sufficient

quantities. Additionally, a program for continuous technological improvement is important to meet the evolving security environment over the coming decades.

USSTRATCOM is committed to ensuring HSWs are ready to employ on day one of fielding as these weapons directly contribute to USSTRATCOM's UCP-assigned strategic deterrence and global strike responsibilities. To operationalize these new capabilities in the near term, we are working across the Department to develop a concept of operation for HSW support to integrated deterrence. USSTRATCOM is working through policy, planning, and C2 processes, and—in conjunction with the Services and other CCMDs—is testing HSWs through a rigorous exercise program. Hypersonic weapons will have an immediate impact to operational plans by deterring and holding adversaries at risk while providing the nation with credible, strategic, non-nuclear response options when faced with armed conflict. Additionally, HSW-related agreements with Allies will further reinforce collective security, promote interoperability, and facilitate optimal deployment of these capabilities.

WARGAMES AND EXERCISES

Wargames, exercises, and rehearsals of concept continue to refine how we demonstrate joint capacity, capability, interoperability, and integrated deterrence across the globe. Last year, USSTRATCOM conducted over 380 NC3-focused exercises and wargame events focused on coordination with national-level civilian and military leadership, other CCMDs, Allies, components, and the interagency. These events integrated advanced weapons, tested new capabilities, and improved interoperability while providing the opportunity to assess application of future force concepts.

DEFENSE INDUSTRIAL BASE

Across America, industries—including but not limited to the defense industry—are grappling with capacity issues stemming from shortages of skilled labor, global supply chain delays, inflation, and a shortage of manufacturing facilities. This, combined with a smaller specialized workforce, transition to offshore supply chains, the need to produce quickly in volume, and costs associated with modern technologies, creates additional program vulnerabilities. These program risks are simple: cost and schedule.

I applaud Congress for its work in attempting to mitigate these challenges with the defense industrial base, both in the near term and longer term. Congress, DoD, and industry must find ways to achieve requirements despite current challenges. As Undersecretary of Defense for Acquisition and Sustainment William LaPlante has said, "production is deterrence." Congress's efforts to on-shore critical components with national security implications, its attention to revitalization of the shipbuilding industry, and investment in infrastructure are all welcome developments. DoD and industry should deepen an already strong partnership. For example, the Department, through its Industrial Base Analysis and Sustainment program, established the National Imperative for Industrial Skills to invest in industrial workforce development needs. We should also design contracts, especially with large programs, to ensure industry accountability for performance, schedule, and cost, with shared risk for both DoD and industry. The B-21 program is an example of effective contract structuring which incentivizes industry to partner with government to identify, incentivize, and mitigate risks early to achieve mutually beneficial outcomes. For items such as critical munitions, we can speed production by taking advantage of new authorities such as multiyear procurement contracts. As Dr. LaPlante has noted, co-production agreements with Allies and partners are part of integrated deterrence.

In the longer term, I encourage further work with the Services to continue to expand industry's capability, capacity, flexibility, and responsiveness.

CONCLUSION

The cornerstone of our national defense remains deterrence, and we will continue USSTRATCOM's vital work during turbulent times. The post-Cold War era is over and a competition is underway among major powers to shape the next chapter. In this environment, USSTRATCOM stands ready to face complex challenges in today's global strategic environment while positioning for the future. I am proud to lead an elite team that stands ready for a new era of strategic competition. Together with our people, capabilities, Allies, and partners, there is nothing that we cannot accomplish.

General Anthony J. Cotton, USAF
Commander, United States Strategic Command

Gen. Anthony J. Cotton is the Commander, United States Strategic Command, Offutt Air Force Base, Nebraska. He is responsible for one of 11 Unified Commands under the Department of Defense. USSTRATCOM is responsible for strategic deterrence, nuclear operations, global strike, missile defense, joint electromagnetic spectrum operations, analysis and targeting, and missile threat assessment. USSTRATCOM is comprised of 150,000 Soldiers, Sailors, Airmen, Marines, Guardians, and civilians who operate globally performing the command's missions. The command also provides the Secretary of Defense and President a range of options to deter adversaries and assure allies.

Gen. Cotton entered the Air Force through the ROTC program in 1986 where he earned a bachelor's degree in political science from North Carolina State University in Raleigh. He has commanded at the squadron, group, wing, and major command levels. He has served as the Vice Commander and Commander of the 341st Missile Wing, Commander of the 45th Space Wing, Director of the Eastern Range, Patrick AFB, Florida, Deputy Director of the National Reconnaissance Office, Commander 20th Air Force, Commander and President of Air University, as well as, Deputy Commander Air Force Global Strike Command.

Prior to his current assignment, Gen. Cotton served as the Commander, Air Force Global Strike Command and Commander, Air Forces Strategic – Air, USSTRATCOM, Barksdale AFB, Louisiana.

EDUCATION
1986 Bachelor of Science, Political Science, North Carolina State University, Raleigh
1991 Master of Science, Administration, Central Michigan University, Mt. Pleasant
1992 Squadron Officer School, Maxwell Air Force Base, Ala.
2001 Air Command and Staff College, Maxwell AFB, Ala.
2005 U.S. Army War College, Carlisle Barracks, Pa.
2006 Enterprise Leadership Seminar, University of North Carolina, Chapel Hill
2007 Phase II PME, Joint Forces Staff College, Norfolk, Va.
2009 Senior Managers Course on National Security, George Washington University, Washington, D.C.
2014 AFSO 21 Executive Leadership Course, University of Tennessee, Knoxville
2017 Leadership Decision Making, Kennedy School of Government, Harvard University, Cambridge, Mass.
2018 Pinnacle Course, National Defense University, Fort Lesley McNair, Washington, D.C.
2018 The Harvard Seminar for New Presidents, Harvard Graduate School of Education, Cambridge, Mass.
2018 Leadership at the Peak, Center for Creative Leadership, Colorado Springs, Colo.
2020 Combined Forces Air Component Commander Course, Maxwell AFB, Ala.

ASSIGNMENTS
October 1986–July 1991, Missile Combat Crew Commander; Standardization/Evaluation Missile Combat Crew Commander; Chief, Standardization/Evaluation Operations/Procedures Branch and Wing Executive Officer, 91st Missile Wing, Minot Air Force Base, N.D.
July 1991–April 1994, Command Operations Evaluator 3901st Missile Evaluation Squadron and Chief of Protocol, 20th Air Force, Vandenberg AFB, Calif.
April 1994–April 1997, Space Surveillance Crew Commander, Flight Commander, Cheyenne Mountain Air Force Station, Colo.

April 1997–January 1999, Chief, Space Surveillance Optical Section; Space Surveillance Program Element Monitor; and Executive Officer to the Director of Operations, Headquarters Air Force Space Command, Peterson AFB, Colo.
January 1999–June 2000, Executive Officer to the Commander, 14th Air Force, Vandenberg AFB, Calif.
June 2000–June 2001, Student, Air Command and Staff College, Maxwell AFB, Ala.
June 2001–March 2004, Operations Officer, 45th Range Squadron; Commander, 3rd Space Launch Squadron; and Deputy Commander, 45th Operations Group, Patrick AFB, Fla.
March 2004–June 2005, Student, U.S. Army War College, Carlisle Barracks, Pa.
June 2005–March 2008, Deputy Director, Secretary and Chief of Staff of the Air Force Executive Action Group; Director, Preparation and Planning; and Senior Military Assistant to the Under Secretary of Defense for Intelligence, the Pentagon, Arlington, Va.
April 2008–July 2009, Commander, Space Operations Group, Aerospace Data Facility-East, Fort Belvoir, Va.
July 2009–May 2010, Vice Commander, 341st Missile Wing, Malmstrom AFB, Mont.
May 2010–August 2011, Commander, 341st Missile Wing, Malmstrom AFB, Mont.
August 2011–June 2013, Commander, 45th Space Wing, and Director, Eastern Range, Patrick AFB, Fla.
June 2013–November 2015, Deputy Director, National Reconnaissance Office, Chantilly, Va.
November 2015–January 2018, Commander, 20th Air Force, Air Force Global Strike Command, Francis E. Warren AFB, Wyo.
February 2018–October 2019, Commander and President, Air University, Air Education and Training Command, Maxwell AFB, Ala.
October 2019–August 2021, Deputy Commander, Air Force Global Strike Command, and Deputy Commander, Air Forces Strategic–Air, U.S. Strategic Command, Barksdale AFB, La.
August 2021–December 2022, Commander, Air Force Global Strike Command, and Commander, Air Forces Strategic – Air, U.S. Strategic Command, Barksdale AFB, La.
December 2022–present, Commander, USSTRATCOM, Offutt AFB, Neb.

SUMMARY OF JOINT ASSIGNMENTS

March 2006–June 2007, Director, Preparation and Planning; and Senior Military Assistant to the Under Secretary of Defense for Intelligence, the Pentagon, Arlington, Va., as a colonel
June 2007–April 2008, Senior Military Assistant to the Under Secretary of Defense for Intelligence, the Pentagon, Arlington, Va., as a colonel
April 2008–July 2009, Commander, Space Operations Group, Aerospace Data Facility-East, Fort Belvoir, Va. (National Reconnaissance Office), as a colonel
December 2022–present, Commander, USSTRATCOM, Offutt AFB, Neb., as a general

MAJOR AWARDS AND DECORATIONS

Distinguished Service Medal with two oak leaf clusters
Defense Superior Service Medal with oak leaf cluster
Legion of Merit with oak leaf cluster
Defense Meritorious Service Medal
Meritorious Service Medal with three oak leaf clusters
Air Force Commendation Medal with oak leaf cluster
Air Force Achievement Medal with oak leaf cluster
Air Force Outstanding Unit Award with oak leaf cluster
Combat Readiness Medal with oak leaf cluster
National Defense Service Medal with device

Global War on Terrorism Service Medal
National Reconnaissance Office Medal of Distinguished Performance

(Current as of January 2023)

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

MARCH 8, 2023

QUESTIONS SUBMITTED BY MR. LAMBORN

Mr. LAMBORN. Thank you for your frank comments on Russia's provision of highly enriched uranium for Chinese CFR–600 Fast Breeder reactors. In February 2023, the administration sanctioned three Rosatom entities, but this is a far cry from enough. Can you please describe what policy proposals the Department of Defense is pursuing to knee-cap Rosatom?

Secretary PLUMB. The Department of Defense (DoD) has expressed its concern regarding Russia's provision of highly enriched uranium to the PRC for use in its CFR–600 fast breeder reactors now under construction, which will likely be used by the PRC to produce fissile material that could be used in its expanding nuclear weapons program. As the 2022 Nuclear Posture Review states, the PRC should adopt a moratorium on fissile material production or, at a minimum, provide increased transparency to assure the international community that fissile material produced for civilian purposes is fully accounted for and not diverted to military uses. Russia's cooperation with the PRC does not reflect the behavior of responsible nuclear weapons states. On April 12, the State Department announced further sanctions on five entities and one individual that are part of Rosatom. The DoD will continue to work closely with other U.S. government agencies to address and constrain Rosatom's activities, including with the PRC.

Mr. LAMBORN. Can you please provide an update as to when the Committee can expect the reports on the nuclear sea launched cruise missile (SLCM–N) and Hard and Deeply Buried Targets directed in the FY2023 NDAA.

Secretary PLUMB. The FY 2023 NDAA tasked reports related to a nuclear sea-launched cruise missile to several components within the Defense Department as well as to the National Nuclear Security Administration (NNSA). These reporting requirements include a letter from the Office of the Secretary of Defense (OSD), a report from the Office of the Secretary of Defense, a report from the Joint Staff, a report from the Navy, and spend plans from the Navy and the NNSA. Efforts to complete the DOD required reports are proceeding. The Navy is finalizing the process to submit a spend plan to the Congressional defense committees. In compliance with Congressional requirements, the Navy has obligated FY22 funds appropriated and authorized for SLCM–N. These funds went to support relevant research conducted by Navy Strategic Systems Programs (SSP).

The Navy intends to obligate authorized and appropriated FY23 funds. This process is ongoing with the intent to submit the report in the near future. OSD is drafting the required report on deterring theater nuclear use and is coordinating completion of the remaining reports by the Joint Staff and the Department of the Navy. The Department is working towards completing these reports by their required NDAA due dates. OSD is also drafting the required letter from the Secretary of Defense identifying "one or more preferred courses of action from among the actions identified in the analysis of alternatives for a nuclear-capable sea-launched cruise missile." The Department is aware that this letter was due to the committee in January 2023. We are working to provide a satisfactory answer to this requirement that is consistent with the legal requirement as well as current administration policy.

A study on enduring approaches to HDBT defeat, one that takes an all-domain approach, is underway. OSD Policy is monitoring this work as part of the Department's efforts to develop an enduring capability for improved HDBT defeat as an outcome of 2022 Nuclear Posture Review. The study team is examining a range of nuclear and non-nuclear options to hold at risk adversary HDBTs. We anticipate timely submission of the report to Congress in the third quarter of Fiscal Year 2023. The Department is complying with Congressional requirements to retain a portion of the B83s in the active stockpile until the HDBT study is complete.

Mr. LAMBORN. Thank you for your comments on the importance of Joint Electromagnetic Spectrum Operations (JEMSO) in the open hearing. I was hoping that you could provide a more fulsome answer for the record. To the best of your ability in an unclassified format, can you describe the ways that United States Strategic Command (USSTRATCOM) relies on spectrum to support its missions and what are some of the future spectrum warfighter needs that will be essential to competing with Russia and China on a future battlefield?

General COTTON. [No answer was available at the time of printing.]

Mr. LAMBORN. What did the Chinese balloon observe while over STRATCOM and U.S. nuclear facilities? What countermeasures did you take to limit or prevent it from collecting intelligence?

General COTTON. [No answer was available at the time of printing.]

Mr. LAMBORN. Your opening statement described Chinese warhead production capacity and the total number you estimate China will have in 2030 and 2035. Please provide an unclassified estimates for Russia.

General COTTON. [No answer was available at the time of printing.]

Mr. LAMBORN. Recent press reported that the Russia's tested a Sarmat ICBM while President Biden was in Kyiv. Can you describe the recent failed test launch of the Russian Sarmat ICBM that has been in the opensource? Do we know what caused the failure, and whether it will impact the system's deployment? Do you believe the timing of the test was adjust to occur during President Biden's visit?

General COTTON. [No answer was available at the time of printing.]

Mr. LAMBORN. In our open session, Secretary Plumb spoke to reports that Russia, specifically Rosatom, is providing highly enriched uranium for Chinese Fast Breeder reactors. These reactors, the CFR–600 that will almost certainly help accelerate the pace of the Chinese nuclear weapons program by producing weapons grade-plutonium. These reports highlight the importance of simultaneously deterring both Russia and China at the same time. How concerned are you about increasing evidence of Russian material support for China's nuclear program and what does this tell you about their strategic defense relationship?

General COTTON. [No answer was available at the time of printing.]

QUESTIONS SUBMITTED BY MR. WALTZ

Mr. WALTZ. There's been discussion recently about satellite tactical surveillance and reconnaissance and whether Space Force should be responsible for requirements, budget, and acquiring government systems or commercial solutions to satisfy warfighter needs. What is your perspective on this? Should Space Force have its own budget for and be able to either acquire or commercially procure tactical satellite surveillance and reconnaissance?

General DICKINSON. I disagree with this claim. USSTRATCOM began advocating for hypersonic weapon capabilities in 2003, and the Department of Defense formally recognized the need for a prompt global strike capability in 2006, well before potential adversaries began maturing and fielding hypersonic weapons.

The challenge of holding adversary targets at risk continues to grow as advanced offensive and defensive systems hinder our ability to employ fires in highly contested environments. Today, the only prompt long-range strike capabilities are ballistic missile systems armed with nuclear warheads. Hypersonic strike weapons will provide a highly responsive, long-range, conventional capability for distant, defended, and/or time-critical threats when other forces are unavailable, denied access, or not preferred. Hypersonic weapon systems will provide senior leaders additional credible strike options to influence all stages of conflict without crossing the nuclear threshold.

QUESTIONS SUBMITTED BY MR. TURNER

Mr. TURNER. We are just past the three-year anniversary for the Space Force. Can you please explain in detail how the establishment of the Space Force as a separate service has benefitted the country and national security, particularly when compared to how Space was managed prior to the Force's establishment?"

Secretary PLUMB. The decision to pursue the establishment of the U.S. Space Force (USSF) reflected recommendations and advice of multiple independent commissions and studies regarding how to adapt our defense space enterprise to the growing security challenges in space. These reviews considered many potential models including making changes within the U.S. Air Force, establishing a structure like Special Operations Command, and the establishment of a separate Military Service.

Ultimately, these efforts led to the legislation establishing the USSF as the sixth Armed Force. This outcome reflected the importance of strengthening advocacy for space in budgeting decisions, strengthening development of doctrine for space, and the need to bring coherency to the complex research, development, and acquisition challenges of developing hardware and software for space architectures of the future.

Access to and freedom to operate in space is critical to our national security and economic prosperity. However, space is a contested domain. Potential adversaries are fielding and developing increasingly complex capabilities in order to have the means to deny the United States access to the space capabilities that are fundamental to our way of war and modern way of life. The Space Force's organize, train, and equip role enables our Guardians to protect national security interests, together with the rest of the Joint Force, in space and across all domains.

In the Fiscal Year 2024 Presidential budget, we saw the largest increase to the space budget to date—reflecting the increased importance of space to our national security and the need to address the challenges we face from adversary threats.

In addition to equipping and budgeting, USSF fills the statutory role to organize and train our Guardians and has established a mission and vision to prepare for conflict that may begin or extend into space. The USSF has established warfighter training and doctrine that had not previously existed, and has organized itself into a force capable of providing space capabilities to the joint warfighter, and moreover, fully capable of reacting to hostile activities during conflict, and denying the adversary use of space-based capabilities that would provide them an advantage terrestrially.

Mr. TURNER. I have heard some claim that the only reason we are investing in hypersonic weapons is because our adversaries already have them. Do you agree with this claim or are there other reasons the US might want to invest in hypersonic weapon capabilities?

General COTTON. I disagree with this claim. USSTRATCOM began advocating for hypersonic weapon capabilities in 2003, and the Department of Defense formally recognized the need for a prompt global strike capability in 2006, well before potential adversaries began maturing and fielding hypersonic weapons. (U) The challenge of holding adversary targets at risk continues to grow as advanced offensive and defensive systems hinder our ability to employ fires in highly contested environments. Today, the only prompt long-range strike capabilities are ballistic missile systems armed with nuclear warheads. Hypersonic strike weapons will provide a highly responsive, long-range, conventional capability for distant, defended, and/or time-critical threats when other forces are unavailable, denied access, or not preferred. Hypersonic weapon systems will provide senior leaders additional credible strike options to influence all stages of conflict without crossing the nuclear threshold.

QUESTIONS SUBMITTED BY DR. DESJARLAIS

Dr. DESJARLAIS. Okay. Shifting gears just a little bit, we had a conversation regarding non-strategic nuclear weapons. And how many non-strategic nuclear weapons does Russia have? And in what ways is their arsenal expanding and expected to expand?

General COTTON. Please see classified response.

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