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Subcommittee on Strategic Forces

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

TO RECEIVE TESTIMONY ON THE DEPARTMENT OF DEFENSE MISSILE DEFENSE ACTIVITIES IN REVIEW OF THE DEFENSE AUTHORIZATION REQUEST FOR FISCAL YEAR 2024 AND THE FUTURE YEARS DEFENSE PROGRAM

Tuesday, May 9, 2023

Washington, D.C.

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U.S. Senate
Subcommittee on
Strategic Forces,
Committee on Armed Services
Washington, D.C.

The subcommittee met, pursuant to notice, at 4:47 p.m., in Room 222, Russell Senate Office Building, Hon. Angus Stanley King Jr., chairman of the subcommittee, presiding.

Subcommittee Members Present: Senators King [presiding], Gillibrand, Rosen, Kelly, Fischer, Cramer, and Tuberville.

OPENING STATEMENT OF HON. ANGUS STANLEY KING JR., U.S. SENATOR FROM MAINE

Senator King: Before we begin today's hearing, I want to acknowledge that Lieutenant General Karbler, and General VanHerck, and Admiral Hill, this may be your last hearing before this subcommittee, before you enter retirement, so I want to thank you especially for your work. We are hoping to be able to replace you, but we will see.

Thank you very much for the work and support that you have provided to the men and women and to the entire country, but particularly the men and women under your commands. I want to thank the witnesses again for appearing before us and for your service.

The purpose of our hearing is to examine the President's budget submission for the missile agency and missile defense policies in preparation for the Fiscal Year 2024 National Defense Authorization Act, which we plan to go to work on in June. Last year, the Department of Defense submitted to the Congress a missile defense review.

It continues the policy of defense of the homeland, as well as deterring attacks against the United States, while assuring our allies through a regional missile defense strategy. I note that it also continues the policy that we rely on our nuclear deterrent against large and sophisticated missile attacks against our homeland from

near-peer adversaries such as Russia and China.

Missile defense has two new aspects that we hope to examine in today's hearing. First and foremost is the defense against hypersonic missiles. They do not follow a ballistic trajectory. Second is the requirement to protect Guam against any threats that China might impose.

This is a daunting task that integrates missile defense systems from the Army, Navy, and Missile Defense Agency, and one I hope we will learn more about in today's hearing. The Fiscal Year 2023 NDAA tasks the Secretary of Defense with designating a senior official, a senior individual for this effort by March 23rd, 2024.

To date, this committee has not heard anything about this. I will want to know its status. The President's Fiscal Year 2024 budget submission for Missile Defense Agency is $10.9 billion. This is an increase from the Fiscal Year 2023 enacted level of $10.5 billion.

I would like to know how the Fiscal Year 2024 budget request continues your effort for homeland and regional missile defense, as well as defense against new threats such as hypersonic weapons.

Again, let me thank today's witnesses for agreeing to appear and for their extraordinary service to the country. And after opening statements, we will have rounds of five-minute questions to the witnesses. Senator Fischer.

STATEMENT OF HON. DEBRA FISCHER, U.S. SENATOR FROM NEBRASKA

Senator Fischer: Thank you, Mr. Chairman. I, too, would like to thank our military members today, General VanHerck, General Karbler, and Admiral Hill for your many years of service to this country. What you do every single day may not be known by every American, but you keep every American safe. Thank you.

We appreciate you appearing before us today and we look forward to hearing from each of you. As we continue to develop and field integrated air and missile defense capabilities, it is important to recognize that the threat landscape has evolved significantly since the inception of our missile defense programs.

This evolution of adversary missile and offensive strike technology, including hypersonic weapons and unmanned aerial systems, increasingly holds at risk not only our military installations, but also civilian populations and critical infrastructure.

As you know, for many years now, this subcommittee has strongly advocated for getting more capability on Guam and getting it there as fast as we can. I look forward to hearing more about the department's plan for the defense of Guam and how the investments proposed by this budget would strengthen the missile defense of the island.

The incursion of the Japanese -- excuse me, the incursion of the Chinese spy balloon earlier this year also highlights the need for increased domain awareness. We cannot intercept what we cannot see and track. It is critical that we continue to invest in terrestrial over the horizon radars and space-based missile warning and missile tracking systems, including the hypersonic ballistic tracking space sensor or HBTSS.

I look forward to hearing more from our witnesses about these issues and about how the Fiscal Year 2024 would impact their mission. Thank you, Mr. Chairman.

Senator King: Secretary Plumb, are you leading off?

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

Mr. Plumb: Yes, sir. So, thank you. Chairman King, Ranking Member Fischer, distinguished members of the committee, thank you for this opportunity to testify today on the Fiscal Year 2024 missile defense budget, and I am honored to appear alongside my colleagues here, General VanHerck and Vice-Admiral Hill and Lieutenant General Karbler. And if it is all of your last hearing, then I just -- I have really appreciated working with all of you. Look how sad they are, sir.

Today, our competitors are using advanced offensive missile capabilities as a principal means to execute their war fighting strategies. We know China is our department's pacing challenge. China has accelerated its efforts to develop, test, and field thousands of missile systems across all classes and ranges. Russia remains our acute threat.

Russia has conducted thousands of missiles and drone strikes to terrorize the civilian population of Ukraine and degrade Ukraine's warfighting capability. Iran has launched missile attacks into neighboring states and provided rockets and drones to non-state actors who in turn use them to target U.S. forces and partners.

And of course, they have also provided UAS systems to

Russia, which is using them in the battle in Ukraine. And North Korea continues to conduct ICBM and other missile tests to threaten and coerce its neighbors.

So, given these threats, missile defense has never been more important. The 2022 Missile Defense Review was released in unclassified form last fall, and this review updated U.S. policy to reflect the current security environment, with three kinds of large updates.

One, emphasizing that we will stay ahead of the North Korean missile threat to the homeland through a comprehensive missile defeat approach, which will be complemented by the credible threat of direct cost imposition.

Second, it makes crystal clear that an attack on Guam or any other U.S. territory by any adversary will be considered a direct attack on the United States and it will be met with an appropriate response. We are committed to the missile defense of Guam to simultaneously protect U.S. civilians, U.S. forces, and our ability to project power in the region.

And third, to deter attempts by adversaries to stay under the nuclear threshold and achieve strategic results with conventional capabilities, the U.S. is pursuing active and passive measures to decrease the risk of adversary cruise missile strikes against critical assets in the

homeland.

The President's budget invests $29.8 billion in missile defeat and defense capabilities. This is an increase of nearly $3 billion over last year -- well, this year, actually, Fiscal Year 2023. Specific to missile defense, this includes $3.3 billion for the ground based midcourse defense, including $2.2 billion for the next generation interceptor.

$1.5 billion for the defense of Guam. Nearly $5 billion for missile warning, missile track, both the new P-LEO Constellation and the next generation overhead persistent infrared architecture. $2.2 billion for SM3, THAAD, and PAC-3 interceptors. Nearly $1.5 billion to counter lower tier missile threats.

And hundreds of millions of dollars for over the horizon radars, hypersonic defense, and directed energy development. Finally, the Fiscal Year 2024 budget continues to prioritize U.S. support to allies and partners.

The U.S. does not face missile threats on our own. Missile defense cooperation strengthens our common protection, enhances deterrence, and provides assurance that bolsters the cohesion of our alliances.

So, the President's budget makes significant investments in missile defense. Those missile defenses are

foundational to integrated deterrence. I would just like to thank the committee for your tireless support of the department and U.S. National Security, and for your support of the President's budget. And I look forward to your questions.

[The prepared statement of Mr. Plumb follows:]

Senator King: Admiral Hill.

STATEMENT OF VICE ADMIRAL JON A. HILL, USN, DIRECTOR, MISSILE DEFENSE AGENCY

Admiral Hill: Chairman King, Ranking Member of Fischer, distinguished members of the subcommittee, thank you for the opportunity to discuss missile defense today. I would like to take a quick moment to thank the women and men of the Missile Defense Agency for the hard work they do every day, delivering capabilities to the services to meet joint command requirements to counter ballistic maneuvering, and hypersonic, and missile threats.

If I were to summarize missile threat, it is three things. It is large numbers, it is high speed, and heavy maneuver. Those are the challenges right now and they are the challenges for the future. MDA is requesting, as mentioned, $2.9 billion to continue our mission of meeting these threats, and I am going to talk to you about three priorities. The first is homeland ballistic missile defense.

And then I will talk about defense of Guam and hypersonic defense. The first priority of homeland ballistic missile defense, which includes Alaska and Hawaii, the ground based midcourse defense system has protected the homeland from rogue nation ballistic missile attacks since 2004.

Our current focus is on new capabilities to counter

the limited but advancing North Korean long range ballistic missile threat. The GMB system is undergoing a service life extension program to improve reliability and extend the GBI fleet to ground based interceptors beyond 2030. These upgrades mitigate the risk until the nation fields the next generation interceptor, which is on track for first emplacement no later than the end of 2028.

NGI development is executing to deliver advanced interceptors featuring multiple kill vehicle technology, which we will add to the current fleet of interceptors at Fort Greely, Alaska, and Vandenberg Space Force Base in California.

Finally, we are on track for operational acceptance of the long range discrimination radar in Clear, Alaska next year. This advanced radar will ensure a stronger homeland defense posture against long range missiles. To achieve priority two, the defense of Guam, also part of the homeland, the department is developing an integrated air and missile defense system to defend against diverse missile threats.

Working with the services and other stakeholders, we are driving to meet INDOPACOM's requirement for a persistent 360-degree layered defense capability on the island against simultaneous rates of cruise, ballistic, maneuvering, and hypersonic missile threats. We are

delivering operational capability in phases to meet these clear warfighting needs.

For the third priority, hypersonic defense, we have integrated tracking capabilities into existing space, ground, and sea-based radars. That capability is here today. Today's sensor architecture and command and control can track hypersonic threats to support warning and domain awareness.

Aegis ships equipped with a sea based terminal capability can engage some hypersonic threats in the terminal phase today. Due to the global maneuver capabilities of hypersonic missiles, a space-based tracking and targeting capability is a clear need. In collaboration with the Space Force, the Missile Defense Agency is developing the hypersonic ballistic tracking space sensor.

Later this year, HBTSS will start on orbit operations to demonstrate unique tracking and targeting to support hypersonic engagements. HBTSS will participate in flight tests and real-world threat collections throughout Fiscal Year 2024. The capability will be proliferated and operated by the Space Force.

We continue to work closely with the Navy to upgrade sea based terminal defenses to counter more advanced maneuvering and hypersonic threats. And based on threat evolution, we will deliver the next SBT incremental upgrade

in 2025. Aegis sea-based terminal is the only active defense available today to counter hypersonic missile threats.

In order to expand the battle space against hypersonic threats, we have initiated the Aegis Glide Phase Interceptor Program. GPI leverages proven Aegis weapon system, engage on remote network sensors to provide a depth of fire needed to thin the raid for terminal defenses.

One final regional defense note, we continue ship upgrades and SM3 Block 1B and 2A missile deliveries and have made significant progress with the Aegis ashore site in Poland, which is on track for operational acceptance at the end of this Fiscal Year.

Also, we are working towards fielding THAAD and Patriot integration enhancements that were successfully delivered to the United States forces of Korea to other THAAD batteries to expand engagement battle space against shorter range stress.

Chairman King, Ranking Member Fischer, members of the subcommittee, thank you and I look forward to answering questions. It has been an honor serving as the Director of MDA.

[The prepared statement of Admiral Hill follows:]

Senator King: Thank you very much, Admiral. General VanHerck.

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

General VanHerck: Chairman King, Ranking Member Fischer, and distinguished members of the subcommittee, thank you for the opportunity to appear today and to represent the men and women of United States Northern Command and North American Aerospace Defense Command.

To address today's strategic environment, for nearly three years I have focused on four key priorities domain awareness, or the ability to see and detect potential threats in all domains. Information dominance, which is the use of artificial intelligence and machine learning to process data more rapidly for strategic advantage.

Decision superiority, which is the dissemination of data and information to the right leader at the right time from the tactical to the strategic level. And finally, global integration, addressing today's environment with a global and all domain approach vis legacy regional policies and practices.

Those priorities are critical to the successfully defending the homeland and providing our national leaders with the only thing I can never give them enough of, and that is time. Time to create deterrence options, and if required, defend and defeat options. I believe the

greatest risk for the United States stems from our inability to change at the pace required by the changing strategic environment.

Homeland defense must be recognized as essential to contingency plans at home and for power projection abroad, and it is vital that all military planning account for that in reality. An area of incredible innovation and technological achievement, inflexible, outdated processes are a greater impediment to success than many of our competitors' advancements.

I would like to highlight two areas for the subcommittee. First, 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 on time, if not faster.

Second, Russia and the PRC continue to aggressively pursue and field a number of advanced capabilities, including hypersonic weapons and delivery platforms designed to evade detection across multiple domains to strike targets anywhere on the globe, including North America.

Hypersonic weapons are extremely difficult to detect,

and counter given the weapons speed, maneuverability, low flight paths, and unpredictable trajectories. Hypersonic weapons challenge NORAD's ability to provide threat warning and attack assessments for Canada and the United States.

Finally, I would like to recognize the tremendous work done by Vice-Admiral Hill and the Missile Defense Agency. In my view, the Missile Defense Agency should be the department's technical integrator to best leverage ongoing multi-domain design and experimentation efforts against current and future air and missile threats regardless of geographical area.

It is clear that the missile threats we face at home and abroad will only continue to grow, and I have been fortunate to work together with a great partner like Vice Admiral Hill in the ongoing efforts to outpace those threats. I look forward to your questions.

[The prepared statement of General VanHerck follows:]

Senator King: Thank you, General. General Karbler.

STATEMENT OF LIEUTENANT GENERAL DANIEL L. KARBLER, USA, COMMANDING GENERAL, UNITED STATES ARMY SPACE AND MISSILE DEFENSE COMMAND

General Karbler: Chairman King, Ranking Member Fischer, distinguished members of the subcommittee, I am honored to again testify before you and to represent an incredible people-first organization of 2,600 soldiers and civilians across 13 time zones in 19 dispersed locations.

Every day these amazing professionals provide space, high altitude, and missile defense forces and capabilities to the Army and joint warfighters. First, let me express my sincere appreciation for your steadfast support of our people and their families.

I serve as the Commanding General of the U.S. Army Space and Missile Defense Command, the Commander of the Joint Functional Component Command for Integrated Missile Defense, and as the Army's Proponent for Air and Missile Defense, or AMD.

I provide U.S. Northern Command the soldiers who stand ready to defend our nation from intercontinental ballistic missile attack, serve as the Army's Service Component Commander to both U.S. Strategic Command and U.S. Space Command, and I am the Chief of Staff of the Army's AMD enterprise integrator.

I would like to first discuss the threats that

confront us worldwide. In Europe, we see daily the continuation of the largest employment of offensive missiles since World War II and the unprecedented use of attack UAVs in Russia's nearly 15-month war against Ukraine. In the Pacific, against the backdrop of multiple missile tests by the DPRK and China, threats of regional and trans regional, complex missile attacks still loom.

In the CENTCOM AOR, our adversaries continue to attack partner nations and U.S. forces using missiles, UAVs, and rockets, artillery, and mortars. I have been an air defender for 36 years, stationed and deployed in the European, Pacific, and Middle Eastern theaters, and I have never seen adversary threat activity, whether that be test or operational use, as great as I see it today.

Adversary actions in the space domain are equally as aggressive as they continue to challenge us across multiple space enabled mission areas critical to supporting our missile defense mission. To address these threats, we must strengthen our capabilities to deny our adversaries the benefit of aggression.

We must continue investment in sustainment of combat ready, capable, and lethal space and air and missile defense capabilities. Fortunately, we do not face these threats alone. We have allies and partners who contribute significantly to the air and missile defense and space

missions. Please allow me to briefly outline just a couple of milestones accomplished by our space and missile defense soldiers and civilians.

This past year, we have partnered with U.S. Army Special Operations Command and U.S. Army Cyber Command to create a Space, Cyber, Special Operations triad to provide deterrence and response options through the integrated use of our unique capabilities.

We have continued to mature the triad through multiple exercises to include the Army's Project Convergence 22 and U.S. Army Special Operations Command Capability Exercise, which was held just last week.

Recently, we reached a historic milestone in the air defense enterprise, with the full rate production decision for the Integrated Air and Missile Defense Battle Command System, IBCS. This any-sensor, best shooter construct allows us to integrate the right quantity and mix of air and missile defense capabilities across all echelons, building an effective, tiered, and layered defense.

And we need to greatly add incredible soldiers to the any sensor, best shooter construct, as these men and women will play the most critical role in this transformative capability. This is the linchpin of the Army's broader air and missile defense modernization efforts, crucial to enhancing our air and missile defense capabilities well

into the future.

In closing and on a personal note, this will be my last opportunity to address the distinguished members of this subcommittee, and I went to, again, thank you for your support. I am confident in the direction and momentum of the Army's air and missile defense, and space enterprises. I look forward to addressing your questions. Thank you.

[The prepared statement of General Karbler follows:]

Senator King: Thank you. I am going to start with a sort of odd first question because my problem, Secretary Plumb, is I don't know who to address my question to. And does that suggest that we need a more integrated central functionality?

Here we have three people in front of us, all of whom have different responsibilities. Maybe Admiral Hill, you are nodding. I mean, I just wonder if we need to need to clean up the organizational chart a bit. It bothers me that we have got missile defense and then you are the operational piece.

General, you are in the middle of it for homeland defense. Do we have the proper organization to allow sufficient timely response and deterrence, frankly? Who wants to take the question?

Mr. Plumb: I am happy to start, Senator.

Senator King: Please.

Mr. Plumb: I do think we do have a good organizational structure here. And I think what you are seeing is that missile defense kind of runs throughout our forces, right. The Navy needs missile defense.

The Army needs missile defense. The homeland is missile defense. And so, and of course, the Pentagon has multiple layers. But I actually think this is structured quite well. I think we have good working relationships and

I think we are making significant progress.

Senator King: You don't think we need a kind of combatant command that would centralize these functions?

Mr. Plumb: Well, since you asked, so the UCP change -- of course we have NORTHCOM, we will do defense of the homeland, and so General VanHerck can speak to that much better than I can.

And the UCP change that has just been signed will transfer JFCC IMD to Space Command, which makes sense because we had already transferred all the sensors to Space Command, and so that aligns.

Missile defense sensors and space domain awareness sensors are often the same sensor, and it is good to have a kind of a global sensor management piece there, too. So, I think, you know, but every combatant commander with geographic responsibility still has missile defense responsibilities.

Senator King: Well -- all right, let me go back to what would have been my first question, and I will -- I guess I will ask it of Admiral Hill. THAAD, Aegis, GBI, Patriot, do all -- are all or any of those systems effective against a hypersonic missile?

Admiral Hill: Thanks for the question. I would say that we have capability within Patriot. It is not -- it was not a requirement that flowed to the system, but it is

got the natural ability to do it because it is a cruise missile killer. And if you have a fast-moving cruise missile, it can bite off part of that threat.

When you look at the SM-6 within Aegis, Aegis has been dealing with maneuvering low on the deck threats for years, I would say decades. And taking that missile with its ability and going after hypersonics makes good sense, which is why we use it for sea-based terminal.

That operates right on the edge of the atmosphere. It is an energetic missile. It has got a great hit to kill record behind it.

We haven't tested against hypersonic threats, but I believe there is like Patriot and like Aegis, there is likely some capability that can be leveraged there.

Senator King: Why not more emphasis on directed energy? A missile -- a bullet on a bullet is an expensive proposition. How much -- well, let me ask that question, how much is a single THAAD bullet?

Admiral Hill: Well, I will give you a range between Patriot up to SM3, and they range everywhere from $4 million up to $10 million or so.

Senator King: Per shot?

Admiral Hill: Per shot, yes, sir.

Senator King: Okay --

Admiral Hill: And I will also, just to kind of follow

up on direct energy. You know, to be effective, you have to be on a target for some period of time with high energy, right. Today, that high energy is scaling its way there. It is also going to be on a platform where it can be transported. That scaling effort to draw down the amount of power usage and those space and weight, that work is being done today. But when you --

Senator King: Is it being done with a sense of urgency? I have been asking these questions for about five years and I don't get a sense of urgency in the department on directed energy, which to me is clearly preferable to a $4 million bullet.

Admiral Hill: Yes, sir, and I agree. And I think the department has done great work by consolidating those efforts to specifically talk to scaling in terms of power, power out of the laser, what it takes to put that laser on the target. But let's talk about the target for a second, right.

We are using it now generally for unmanned air vehicles, right. Smaller, loitering, that kind of vehicles. When you talk about very fast-moving targets that were designed to operate in very high heat environments, and you are going to try to take them out with high heat, that is a really tough equation to close.

So, more investment is required, more focus on getting

to those areas. But it is science and engineering right now. That just happens to be where we are today, sir.

Senator King: Thank you. Senator Fischer.

Senator Fischer: Thank you, Mr. Chairman. Dr. Plumb, how does the budget request support the development and fielding of an integrated air and missile defense system for Guam?

Mr. Plumb: Thank you, Senator. There is $1.5 billion in the budget for Fiscal Year 2024 between, I think, roughly $900 million MDA and $600 million for the Army -- although I may have those reversed.

But there is a lot of money towards that, and we are working to try to get initial capability there and then build out on that. And I actually think -- well, actually, frankly, I think Admiral Hill might have some to add on the sequencing of that. But the goal is how fast can we get some capability and then build out on it.

And of course, the challenge of 360 degrees against all the different types of missile threats, is a new one for that sizable area.

Senator Fischer: Admiral Hill, in this setting, what can you add to that and the progress that we are making, and if you can, some of the challenges that you are facing on deployment?

Admiral Hill: Yes, ma'am. First, I will say we have

a great partnership with the Army in terms of the system development. Great partnership with the Navy, in terms of identifying the sites on where this equipment would go.

And we have a really tough customer named Admiral Aquilino who constantly drives us to get there as early as we can, and he removes barriers for us to do that. One of the hardest things we are doing right now, this year in '23, is site selection and the start of the environmental impact surveys.

You have to do that. We have the sites selected. We know that once we go to those sites and do more work, that we may not be able to land on all those sites. There is a dozen or so sites. About half of those are for MDA and the other half are Army. That is a real challenge.

But the good news is, while we are doing that, we haven't slowed down on the development. The Army is moving very quickly on the IBCS system. MDA is moving very quickly on the Aegis capability.

And we are doing something different with Aegis. It is not a consolidated deck counts like you see on a ship. It is not radars overlooking the launcher so they can immediately capture the missile upon launch.

The radars are external to get to the 360-degree coverage, along with the Army radar systems associated with IBCS. So, it is a tough engineering challenge just because

of the physical lay down, and the land use, and the environmental impact surveys are definitely a challenge, but we are going to come through those within the next couple of years and you will start to see the capability land on the island progressively.

And I owe Admiral Aquilino a year-by-year status update on where we are with the integration and the operations of that material.

Senator Fischer: Thank you. Secretary Plumb, Section 1660 of the Fiscal Year 2023 NDAA required the Secretary to designate a single senior official to be responsible for the missile defense of Guam. How close is the department to making that designation?

Mr. Plumb: Senator, we are pretty close. We already held a missile defense executive board that is run by Undersecretary LaPlante. And on this issue, we still have to get the, you know, recommendation staffed up and through the Secretary, but it is in train.

Senator Fischer: Okay. And General Karbler, how does the high up-tempo rate for air defenders in Guam impact the quality of life for soldiers with their families that they have there as well?

General Karbler: [Technical problems] -- okay. We have had soldiers on Guam since 2013, so for ten years we have had a THAAD battery there. Initially, it was a year

deployment and then we transitioned that into a three-year PCS so that they could bring dependents and families there.

So, we have learned lessons from the THAAD battery being in Guam that we will apply as we go forward. One of the critical elements is the fact that the infrastructure -- in addition to the missile defense capability that we will bring, we also have got to ensure that the infrastructure is there to support soldiers and family.

And that is a key point that we have brought up, and I know General Flynn at USARPAC is making sure that he emphasizes as well.

Senator Fischer: Yes, thank you. As we move forward on the timeline that the Admiral pointed out, it is important to get that infrastructure in place, correct?

General Karbler: Yes, ma'am. And that structure will be added to the Army. That will not come from the current structure that we have, recognizing the up-tempo challenges that we have within the air and missile defense force today.

Senator Fischer: Thank you. General VanHerck, NORTHCOM and NORAD are required to track various threats to our homeland, and I appreciated our discussions earlier this year on some of the items on your unfunded priorities list that would help increase that domain awareness.

Are there additional changes that the department can

make in order to field capabilities faster, for example, using digital engineering during the development or increasing testing tempo? We had some good examples that you gave us earlier on limits that you face.

General VanHerck: Certainly, Senator. I think culturally we are an industrial age department transitioning into a digital age. I recently went to a major defense firm, I will just say that who is building that capability, who has embraced the digital aspect of buying down risk during multiple portions.

So, I think there are things that we can do in a virtual environment. We can do things -- now, what I would say is in parallel, not serial, as we develop capabilities to buy down risk and to go faster in the long run.

Senator Fischer: Can I just have one follow up there? Secretary Plumb, do you have anything to add to that? You know, to me what the General just said, it kind of shows the importance of the organizational setup that is currently in place with you guys here at the table, that Senator King referred to in his first question to you. Am I reading that right?

Mr. Plumb: Senator, I am not --

Senator Fischer: You can -- so you can work in parallel instead of in serial, or am I just going to -- tease my colleague here a little bit --

Mr. Plumb: I think what General VanHerck is getting at is if you can transition to digital design, you can change your plans and your structure and even what you build faster because you have a much quicker feedback loop into your system.

And I think some of the more forward leaning parts of the industrial base, and even the commercial base, have figured this out. And I am happily not the acquisition person, but I fully support moving faster and smarter, especially when it saves money and gets us capability sooner.

Senator Fischer: And we do as well, which I think is important to be able to have the focus that General Karbler has, and that Admiral Hill has to be able for them to have that focus on what they are trying to accomplish and get done under the current organization. Does that make sense? No?

Mr. Plumb: Yes.

Senator Fischer: Yes. Thank you.

Senator King: Senator Gillibrand.

Senator Gillibrand: Thank you, Mr. Chairman. General VanHerck, last July, you told reporters at the Aspen Security Forum that AARO's formation did not change how NORAD did business.

Following the events involving the Chinese high-

altitude balloon and three UPS, has NORAD increased its coordination with AARO? And have you begun to identify a higher volume of unidentified aerial phenomenon?

General VanHerck: Senator, absolutely. As a matter of fact, the lead of AARO came out to NORAD, NORTHCOM, gave us a visit.

Senator Gillibrand: Great.

General VanHerck: Working much closer on the challenges that we face, ensuring that we are sharing data and information from anything that we see or do not see to ensure that we pass it to the organization so they can further investigate it. Absolutely.

Senator Gillibrand: And the last time we had a hearing was AARO, we discussed investing in over the horizon radar and other type of new sensors that would help with collection. Have you been consulted on any of that discussion?

General VanHerck: I have been heavily involved in the discussions on over-the-horizon radar with both Canada and the United States. The department is funding over the horizon four for the United States, and Canada has announced two. So absolutely, yes, I am directly involved.

Senator Gillibrand: And have you been in the discussions about the type of sensors that could be used or deployed to garner information specifically for the

airspace that we don't really look at because it is not related to missiles?

General VanHerck: I am not sure I understand that. So more broadly, I would just tell you that over the horizon, radar is not the end all, be all solution. That will give me domain awareness further away from the homeland.

I am still confident in my ability to detect the balloons that we saw, the PRC high altitude balloon, and the subsequent objects that we saw and shutdown. But that is not the end all, be all. There has to be domain awareness between the over-the-horizon radars, that links the data from there to an endgame effector. And so there needs to be additional domain awareness.

We need to look more broadly at the rest of the infrastructure, the radars as well, and ensure the data from those systems is incorporated in an integrated air and missile defense system that can lead to effectors. And I will go back to the comments of the chairman. I am focused not on endgame kinetic kill.

I am focused primarily on the policy for what we must have in game kinetic kill, but more broadly, for developing capabilities such as the use of the electromagnetic spectrum, non-kinetic effectors to deny and deceive, and limited area or wide area defense capabilities, to include

the use of autonomous unmanned platforms with domain awareness capabilities that could be maritime and airborne.

Senator Gillibrand: And are you coordinating that -- those recommendations and those plans with AARO?

General VanHerck: Not directly with AARO right now, Senator. Into the department, which I am assuming the department is going to pull in AARO as part of that. So right now, we are relooking the policy for homeland defense. I have provided my commanders estimate, which is a plan for that.

I am also in the middle of developing what I call homeland defense design 2035, which gets after exactly what I talked about, a new way of defending the homeland. And that is vastly different than the way we do it today with fighters, tankers, AWACS, those kinds of things.

Senator Gillibrand: I appreciate that, and I am looking forward to that myself. We have heard that our radar sites, depending on who you asked, are based on 1980s technology, or 1990s era technology and 1960s era decision process.

How -- I assume, based on your last answer, that you are improving the Northern warning system and bringing other critical defensive infrastructure to be fully modernized.

General VanHerck: So, the over-the-horizon radars

will be addition to the North warning systems. The Department hasn't made a decision on modernization of the North warning system or further replacement of the radars associated with the North warning system, but that has to be a discussion. Like I said, OTHR is not the end all, be all solution.

Senator Gillibrand: Understood. So, are you going to give us recommendations for updating the Northern warning system?

General VanHerck: As part of the relook at homeland defense and the policy study ongoing right now, that has to absolutely be part of the way forward.

Senator Gillibrand: I look forward to seeing that. Admiral Hill -- there is still time, right? 30 seconds, okay. I didn't know if your tap was hurry up. I didn't know it was a hurry up tap. Okay.

Admiral Hill, while at the House Armed Services committee hearing in March, General Milley told Congresswoman Stefanik that he believed a potential third missile defense site at Fort Drum would be strategically worthwhile.

Do you agree with that assessment? And what advantage does this provide us when dealing with a potential nuclear threat from Iran?

Admiral Hill: Yes, ma'am. During my last testimony,

I did mention that I support the chairman's comments. I think another site -- you can never have too many sensors. You can never have too many effectors to deal with the kind of threats that we are dealing with.

I do think it is part of a mix of other options that we can look at. And so, we are doing a study now that we owe back to the Hill by the end of June, and so we will complete that and deliver that.

Senator Gillibrand: Okay. Mr. Chairman, I am going to submit a question for the record concerning cyber to Secretary Plumb. Thank you.

Senator King: Senator Cramer.

Senator Cramer: Thank you, Mr. Chairman. Vice Admiral Hill, I am going to start with you just to relieve General VanHerck, who is thinking he is going to ask me about PARCS. I know he has asked me about PARCS.

He always asks me about PARCS. So, I -- maybe building on what he has just been talking about, maybe I will get back to him as well, related to Senator Gillibrand, what role does ground based radar play?

And since I brought up ground based, and what about PARCS? What do you see is the future for PARCS, and in this transition, at least to more space based?

Admiral Hill: Yes, sir. I believe the PARCS radar is owned and operated by the Space Force. We did and continue

to assess the utility of it based on where our threat regions are and our focus for our sensor architecture.

Right now, PARCS is not a part of the overall missile defense architecture. I think the Space Force has ideas for it. I am just, I am not familiar with them yet, so I would probably have to go back and --

Senator Cramer: So, does that mean I have to ask General VanHerck again, to remind us of the importance of PARCS, short term, you know, mid-term, maybe long, long term. General.

General VanHerck: There is $108 million in the President's request in Fiscal Year 2024 for PARCS to go forward. Itis crucial for missile warning today. As we go forward, and the proliferated low-Earth orbit capabilities come online, then I am sure the Department will reassess the need. And I am confident if it is still required, the department will continue to fund it.

Senator Cramer: The policy that you were visiting with Senator Gillibrand about -- when would we expect that and how would that affect, say, a budget a year from now, two years from now, as we are trying to, you know, beat -- move at the pace of China.

General VanHerck: Yes, I would defer to department on that. I expect that policy within weeks to a few months, and it should inform the next budget cycle.

Senator Cramer: Very good. Thank you. I will yield back, Mr. Chairman. Thank you all.

Senator King: Thank you, Senator. My impression, and perhaps you have the figures, Mr. Secretary, is that we are spending a lot more money on developing hypersonic missiles than we are in defending against hypersonic missiles. Is that true?

Mr. Plumb: I don't have hard numbers on that, sir.

Senator King: I will take that for the record, please.

Mr. Plumb: Yes.

Senator King: And if I am correctly informed that that is the case, that we are spending more, it seems to me that we ought to be reconsidering that in terms of the importance of defense.

Let me go back to my question to Admiral Hill. Can we stop a hypersonic missile today? You are on an aircraft carrier in the Western Pacific. Hypersonic missiles, fires coming at you 7,000 miles an hour. Do we have the capability to stop that missile?

Admiral Hill: You have the capability to stop it in two places. One is in its ballistic flight and --

Senator King: But it is a hypersonic missile. Does it necessarily go into ballistic flight?

Admiral Hill: Not all of them do, but the ones that

are currently in the theater we are talking about will normally start with a boost, and then go into a glide, and then into the terminal phase. And in the terminal phase, it can be defeated.

Senator King: And do we have -- it can be defeated by a ship at sea?

Admiral Hill: By a destroyer guarding the carrier. Yes, sir.

Senator King: Why aren't we testing more? I couldn't find it in my notes, but I think China is testing something like 20 times as many missiles we are. Why are we so -- they seem to be more tolerant of failure, and they learn more. And we have to -- our tests have to be perfect. Talk to me about testing.

Admiral Hill: Yes, sir. You know, so testing is really the end of the system engineering loop, right. You are validating that you have met your requirements through the system development.

So clearly, they are moving faster than we are. I would say that many of the tests that we do in some of these more high-end threat areas that we don't report out publicly because of the classified nature of them.

So, there is, I would say, a reasonable amount of testing that is occurring against those sorts of advanced threats. We just don't publicize them.

Senator King: Well, I think it was you in your testimony that said we are not reacting fast enough, that this climate is changing so rapidly that we are not -- what should we be doing?

What can this committee do in the way of additional resources, additional organizational changes so that we are not continually trying to catch up because we are -- we have -- this is a strategic change in the in the world that we are not adequately addressing. What do we need -- I am talking about hypersonics.

What do we need to do to be able to address that more effectively?

Admiral Hill: Yes, sir. So, we have addressed the policy. So, the hypersonic defense that we do today is regional based, meaning we will take care of forward to sea bases, and forward deployed Army maneuver forces. That is our focus today.

And we want to do layered defense, which is why I will talk about glide phase. I will talk about kill it in the boost phase. We know how to kill aircraft. And when we are down in that terminal phase, we have to have a robust capability to do that in the load out on the ships. So that is our focus today is on regional.

We have -- we do not have the policy to go after the strategic hypersonics, and that may be where you are going,

Senator. I am not sure.

Senator King: Well, it seems to me that this is a deterrence gap, where we need our adversaries to know that this weapon is not going to be effective. The whole idea of deterrence is that there is a level of resilience, and that is what worries me. Is that by not having the defensive capability, you are inviting, in effect, a strike.

Admiral Hill: We do have the defensive capabilities within the sea based today. I want to work with the Army to build out the Patriot capability that we talked about earlier and to add to that capability.

We have a program in place called the Glide Phase Interceptor to thin the raid up in a different part of that flight regime, because we, from a layered defense perspective, we want to attack every part of that trajectory, and particularly where they are vulnerable, which is the glide phase.

Senator King: Taking account of chaff and diversions and --

Admiral Hill: absolutely --

Senator King: -- decoys and all of that kind of thing. General Karbler, can you see a hypersonic from space, single missile?

General Karbler: Depending on the platform, delivery

systems, sir, yes. If it is on the end of a boosting missile, we will see the initial -- we will get an initial indication of it launching. But once it starts going into its flight phase, it becomes a very difficult target to track, to keep it from -- to keep track custody of it really from birth to death, as I would --

Senator King: Particularly if it is at a low altitude. Is that correct?

General Karbler: Correct.

Senator King: This is an entirely different question. Obviously, missile defense is very important to the Ukrainians. Why isn't Iron Dome being deployed to Ukraine? Secretary Plumb. We helped pay for it.

We have spent something like $3 billion to Israel to develop it. $500 million a year, my understanding is. Wouldn't this be a very important resource for the Ukrainians since their principal problem right now is air defense?

Mr. Plumb: So, Senator, what we are using for supplying Ukraine with missile defenses from the United States stock is things we can draw down from our own stock. You know, we supplied Patriot batteries, for example. We supplied significant investments in missile defense, and we have encouraged allies to do the same.

Senator King: I understand a Patriot just took down a

Russian missile yesterday, I believe.

Mr. Plumb: It certainly has been in the news.

Senator King: Open source, I guess.

Mr. Plumb: Open source, there was a Patriot interceptor that killed a hypersonic missile in the last few days, yes, sir.

Senator King: What about Iron Dome?

Mr. Plumb: I am not aware of an Iron Dome system being offered to Ukraine, but that could be incorrect. I just don't know. Maybe someone else at the table, but I am not sure.

Senator King: Any other thoughts?

General Karbler: Sir, our two Iron Dome batters that we have right now, one completed its no equipment, training, no equipment, fielding. It is prepared for deployment. The second one is wrapping up its new equipment fielding right now. So, the Army does have one battery available for deployment pending a request for it.

Senator King: Thank you. Secretary Rosen.

Senator Rosen: I was going to say that I got --

[Laughter.]

Senator King: I promoted you.

Senator Rosen: -- I got a promotion or --

Senator King: Senator Rosen, sorry.

Senator Rosen: It is a flying day, so it is a long

flight from the West Coast. So, there you go. Just got in. So, thank you very much, Chairman King, Ranking Member Fischer. Appreciate it, and appreciate all of you and for your service, everything you are doing here today. So, I am going to talk a little bit about safeguarding domain awareness.

So General VanHerck, as you well know, our adversaries continue to field advanced capabilities across domains that have the potential to threaten the homeland. So, in light of these threats, NORTHCOM and NORAD must ensure that the systems providing the homeland with domain awareness are survivable, adaptable, and modern.

In addition, these systems must be hardened, as they will be subject to an array of cyber-attacks during any contingency. And so, I am encouraged by NORTHCOM's continued efforts to modernize legacy detection systems such as the over-the-horizon radar. Detection alone isn't sufficient.

Operators have to have the ability to effectively communicate the operational picture to other commands, as well as to our partners and allies, often under highly compressed timeframes.

And we see those with, you know, hypersonics and others. So, General VanHerck, what steps are you taking to sufficiently harden our command and control nodes,

particularly in the cyber domain, so that we are able to effectively share the operational picture during our potential conflict?

General VanHerck: Senator, thanks for that. So, I am advocating to the Department that the foundational infrastructure, the IT network and backbones that the data and information rides on, it allows us to share data and information internally, and with the allies and partners and my fellow combat commanders, is resilient and redundant in the way we go.

The department this year has put several billion dollars into foundational infrastructure, which I think is crucial as we move forward to get after the cyber vulnerabilities that you talked to. Candidly, my most concerning domain awareness problem is exactly that.

It is the limited knowledge of cyber vulnerabilities for the critical infrastructure that we rely on to project power from our homeland, to defend our homeland, to do command and control within our homeland. So, I continue to advocate for that to the department.

Senator Rosen: Thank you. I appreciate that, because I think the resiliency of redundancy and the agility of those systems are going to help us be successful.

And in the technology space, of course, Admiral Hill, as you are aware, China's missile defense strategy heavily

emphasizes developing anti-access, aerial denial capabilities, which use a combination of ballistic and cruise missiles launched from air, land, and sea to target the U.S. and, of course, our allied military assets in the Asia Pacific Theater, such as those in Guam or Okinawa.

So, Admiral Hill, with the rapid increase in China's technological advancement and missile accuracy, what kind of measures are we employing to increase the survivability of our own platforms to ensure that we can operate in and around these highly contested environments in the Pacific?

Admiral Hill: Yes, ma'am. Thanks, Senator. I use the aircraft carriers, since Senator King brought that up a little bit earlier, that is where we focused our energies on increasing the ability to take on the hypersonic threat. The ships currently are outfitted with ballistic missile defense.

So, from a missile defense perspective, ships moving forward into the island chain have the ability to defend against ballistic missiles. They have their own capability to do self-defense against cruise missiles, and we have hypersonic defense. A ship has to worry about a lot. So, I am not going to speak for the Navy.

I can just speak to the missile defense missions that we provide in coordination with the Navy. With the Army, we have talked a lot about the maneuver force in terms of

Patriots and station forward. Defense is important if you want to either buy time or to ensure that you can live to fight another day.

Senator Rosen: That is right. Well, thank you. And I know that Chairman King talked about hypersonic weapons. So, Secretary Plum, Russia and China, no secret they are fielding hypersonic weapons. There are highly maneuverable vehicles that fly around more than five times the speed of sound.

The weapons have the potential to overwhelm our U.S. missile defense systems, undermine our strategic deterrence. So, I know we are not in a classified setting, so I would like to hear a little bit about your assessment of our hypersonic missile defense programs, our space-based sensors, what do we do to neutralize the threat?

And I notice as I read some of the background, and you alluded to this earlier, that of course, we have the -- we know much earlier on a ballistic missile where it is going, and we have to not able to track the hypersonic once it may have left its launch.

And so that time frame of difference, and I know we are not in classified setting, but are we able to be agile enough to track it, to notify our allies and partners to make adequate decisions across the spectrum?

Mr. Plumb: So. Thanks, Senator. Just a couple of

pieces, if I may. So just to start, five times the speed of sound is -- all the ballistic missiles travel pretty fast, right. So, it is not really just a speed piece. It is the maneuverability of a hypersonic weapon that bothers everyone at the table, because you can't predict the end point by knowing the initial launch conditions.

And there is a lot of ballistic missiles in the world that still maneuver at the end, but they still give you a better arabesque, and you just kind of know about where they are going to end up if you do your math right, but you can't do that with a cruise missile because it can keep maneuvering.

So, one of the things we are really heavily investing in is a space-based architecture that can at least have awareness of where these things are through their flight. Admiral Hill is working on something called HBTSS -- which I call hobbits, I don't know if anyone else does. But the idea there is to actually be able to do custody of it and be able to track a piece all the way through.

So, we are working on this, and that is a big problem because you can't just rely on one vector or one radar phase to tell you a thing is coming, and so it is a hard problem. We are working on that. So that is one piece. You got to have that domain awareness and ability to track these things, and we are working hard on that.

Also, you have to have something to be able to actually shoot at it, otherwise all you can do is watch it. And so, working on -- we have already talked about it turns out Patriot even has some ability against the hypersonic.

But the Glide Phase Intercept Program is one thing that is being worked on, for example. Admiral Hill has already spoken at some length about sea based terminal mode of the SM-6, which is good for ship defense and point defense. So, we are working on all these pieces together.

Senator Rosen: Thank you. I see my time is up.

Senator King: Senator Kelly.

Senator Kelly: Thank you, Mr. Chairman. Thank you, Senator Rosen, for the lead into my question, which is about --

Senator Rosen: I predicted it.

Senator Kelly: Thank you. So that SM-6 -- so, Admiral Hill, Secretary Plumb, the SM-6 ship launched anti-air and anti-surface interceptor, this missile is produced at Raytheon in Tucson, Arizona.

Admiral Hill, last year during this hearing, you noted that the SM-6 is the only weapon in the country's arsenal capable of engaging highly maneuverable hypersonic missiles, threats, incoming threats.

So, in the context of potential adversaries, can you please speak a little bit more about how important it is

for the U.S. to have an arsenal capable of engaging highly maneuverable, hypersonic threats?

Admiral Hill: Yes, sir. And it is a full kill chain answer, right. Secretary Plumb already talked about our ability to detect and track them. If you can't do that, you can't fire anything at it right now.

And it is a very complex -- once it comes into the glide phase, it has got the ability to maneuver globally. So that is why we need to see them from space and have a total track custody, all the way to the end game.

And when they dip into the atmosphere and start that maneuver, you have to have a shooting battery, whether it is a ship or some sort of land-based unit, that can do that, find, tune, tracking in the endgame to launch and control that missile.

But it is important to have an arsenal. And when you say arsenal, I translate that as an inventory. You need a large inventory of them because, again, the threat can be defined as big, big numbers, very high speed and maneuver.

Senator Kelly: Before we get to the procurement and the inventory numbers, can you comment a little bit about when we get to that endgame, when we -- and maybe you can't because this is not a classified setting, but when we look at like cross range for an SM-6, can it match the cross range capability of any hypersonic missile that, you know,

China is currently developing?

Admiral Hill: I think in this environment I can say yes that we are matched very well with the threat and where it is today. We are going to have to continue to improve our missile capability. At some point we will over overmatch the G capability of that missile frame.

Senator Kelly: And then Secretary Plumb, on the -- you know, Admiral Hill mentioned that we would need a lot of them. I understand DOD is requesting a multiyear procurement in the next budget request to include 825 SM-6 missiles. Can you explain why it's such a critical request as we face this capable adversary, and why doing large lot procurements is the best way to do this?

Mr. Plumb: Well, first of all, Senator, again, I am not the acquisition professional at this table, but I will just say that once you have a proven capability, being able to buy in large lots gives you insight into how the missile performs. It is much better than just building a few at a time. It is a much better way to do your statistics on your manufacturing and how it works.

Senator Kelly: And, you know, if we have a high value target and we have got an incoming hypersonic missile, I imagine the, you know, the ops plan there is not to just launch one of these things at it. Hence the 825 number to protect --

Mr. Plumb: That is true --

Senator Kelly: -- protect the fleet and the high value targets.

Mr. Plumb: Sir, in air defense, it is really an operational question because it will vary. But most commanding officers of a ship, most commanding officers of a battery will determine what their salvo size is based on the threat and numbers that they are dealing with. Yes, sir.

Senator Kelly: Thank you. Another subject. So, the request, I think, is for $1.6 billion for Aegis in Fiscal Year 2024, which gets us 27 SM-3 Block 1Bs and 12 SM3 Block 2As and develops upgrades to the system.

The Aegis site is expected to be among the first to receive the SM-3 Block 2A. And I think this is going to be at the Aegis ashore site in Poland, is my understanding. Can you provide a status of Aegis ashore in Poland, and what it will be able to do when fully operational?

Mr. Plumb: Yes, sir. So, Aegis ashore in Romania, operational today. Poland is going through the board of inspection survey today.

So are leveraging the Navy processes there that drive us to Chief of Naval Operations' acceptance by the end of this Fiscal Year. It will then go through European Command and NATO's acceptance throughout next year.

So, we are right now operating the site, but we will come through those different certifications over the course of the next few months, and it will be fully operational.

And what it provides is it completes European phase -- phase three, which means that we can defend against ballistic missiles from rogue countries to protect Europe and the United States.

Senator Kelly: In my remaining 15 seconds, real quick, when I was over in the Middle East in January, Israel and some of our Middle East partners, you know, made a request in looking for support for an integrated missile defense architecture in the Middle East between Israel, other countries, and the United States. What are your thoughts on an integrated regional missile defense for the Middle East?

Mr. Plumb: Is that a question for me?

Senator Kelly: Yes.

Mr. Plumb: It is probably more of an operational question, but from an acquisition development perspective, we work very closely with Israel. Senator King mentioned that $500 million of our budget every year goes to building out the defense capabilities for Israel, focused mostly on upper tier AARO, David's Sling, and Iron Dome.

We integrate as far as we can integrate, whether it is across the sensor architecture to provide tracks, or if it

is a deeper set of integration, as a General Karbler does within the Army on Iron Dome. But I think there is nothing wrong with being integrated across, you know, friends and allies.

Senator Kelly: Thank you.

Senator King: I want to thank all of you for joining us today. I have a couple of concluding thoughts. One, is it strikes me as bothersome that all three of you are leaving at the same time. It also strikes me as bothersome that I think that Chairman of the Joint Chiefs, Chief of the Navy, I believe the Air Force are also all leaving this summer at the same time.

There ought to be a staggered system so that there is continuity in this critically important function. That is not your problem, but it is one that, Mr. Secretary, I think we ought to think about.

To have the entire upper echelon of this particular, critical function walking out the door essentially within months strikes me as not a good organizational structure. Secondly, the three of you are in an extraordinary position to be able to give us some strong exit interview data.

In other words, as you are leaving, what would you change? What would you suggest to the committee in terms of authorities, organizational structures, priorities? Where do you think we could improve this entire missile

defense enterprise?

As I say, all three of you are in an exceptional position to do that, and I am not in the position of assigning homework here, but it would be very important to the committee if you could give -- just give us two or three pages. Here is what I would change, as I am going out the door, to improve the functioning of this critically important part of our deterrent and our national defense posture.

So, I want to thank you all again for your service, congratulate you, and look forward to your suggestions. And the only -- other thing I would say is, do it soon. We are about to do the National Defense Authorization Act in about five weeks, and we would love to have your input as the subcommittee makes its report to the full committee.

Thank you again and thank you for your service to the country. Senator Fischer, did you want to add any conclusion?

Senator Rosen: Well, I would say, well said, Mr. Chairman. Thank you all.

Senator King: Thank you. The hearing is adjourned.

[Whereupon, at 5:48 p.m., the hearing was adjourned.]