[H.A.S.C. No. 118–46]

CONGRESSIONAL COMMISSION ON THE STRATEGIC POSTURE OF THE UNITED STATES

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED EIGHTEENTH CONGRESS

FIRST SESSION

HEARING HELD
NOVEMBER 15, 2023

U.S. GOVERNMENT PUBLISHING OFFICE
56–378 WASHINGTON : 2024

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CONTENTS

Page

STATEMENTS PRESENTED BY MEMBERS OF CONGRESS

Moulton, Hon. Seth, a Representative from Massachusetts, Committee on Armed Services 2
Rogers, Hon. Mike, a Representative from Alabama, Chairman, Committee on Armed Services 1

WITNESSES

Creedon, Hon. Madelyn R., Chair, Congressional Commission on the Strategic Posture of the United States 3
Kyl, Hon. Jon L., Vice Chair, Congressional Commission on the Strategic Posture of the United States 5

APPENDIX

PREPARED STATEMENTS:
Creedon, Hon. Madelyn R., joint with Hon. Jon L. Kyl 33
Smith, Hon. Adam, a Representative from Washington, Ranking Member, Committee on Armed Services 31

DOCUMENTS SUBMITTED FOR THE RECORD:
Senator Dianne Feinstein Op-ed 67

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

QUESTIONS SBMITTED BY MEMBERS POST HEARING:
Mrs. McClain 75
Mr. Rogers 71
Ms. Sewell 75
Mr. Turner 71
Mr. Waltz 72

CONGRESSIONAL COMMISSION ON THE STRATEGIC POSTURE OF THE UNITED STATES

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, Wednesday, November 15, 2023.

The committee met, pursuant to call, at 9:30 a.m., in room 2118, Rayburn House Office Building, Hon. Mike Rogers (chairman of the committee) presiding.

OPENING STATEMENT OF HON. MIKE ROGERS, A REPRESENTATIVE FROM ARKANSAS, CHAIRMAN, COMMITTEE ON ARMED SERVICES

The CHAIRMAN. The committee will come to order. Today we are joined by the chairs of the Strategic Posture Review Commission. The Fiscal Year 2022 NDAA [National Defense Authorization Act] established the commission to assess the long-term strategic posture of the United States, and to provide Congress with recommendations to improve our nuclear deterrent.

We did this because for the first time since the dawn of the atomic era, the United States must deter two nuclear peer adversaries simultaneously. China is rapidly expanding its nuclear forces in what Admiral Richard, the former STRATCOM [U.S. Strategic Command] commander, described as a breathtaking strategic breakout. According to the Department of Defense's most recent report on China's military power, the pace of its rapid nuclear buildup will only accelerate in the coming years.

Meanwhile Russia possesses the largest and most diverse nuclear arsenal in the world. It maintains a nuclear weapons production complex capable of producing hundreds of warheads per year, and its arsenal continues to expand. Most alarming, its stockpile of non-strategic nuclear weapons, a category of nuclear arms not limited by any treaty, reportedly holds at least a 10-to-1 advantage over the U.S.

Both China and Russia are also developing new highly destabilizing nuclear capabilities designed to avoid U.S. early warning systems and give both nations the ability to launch surprise nuclear attacks. China is also developing a fractional orbital bombardment system armed with nuclear hypersonic glide body. And Russia is on the cusp of fielding a suite of new capabilities including nuclear-armed cruise missiles powered by nuclear reactors, and a megaton class long-range underwater nuclear system.

Meanwhile, North Korea's nuclear arsenal is rapidly expanding and growing in sophistication, and Iran is within a few days from having enough enriched uranium to build a bomb. The United States on the other hand, has allowed its nuclear enterprise to

wither away. As of today, we cannot produce a nuclear weapon. We are the only nuclear power unable to do so.

Years of complacency have caused significant delays in our efforts to resolve this capability. And while I was pleased to see the successful first flight of the B–21 this weekend, programs to build modern replacements for our Cold War-era nuclear triad have suffered from repeated delays. And finally, the Biden Administration's efforts to end development of a nuclear capable sea launched cruise missile and retire other nuclear weapons before their replacements arrive further undermines our strategic deterrent.

We need to reverse course. We need an enhanced level of innovation and investment in our nuclear modernization, that's what this commission, on a bipartisan basis, is asking us to do. As the commission notes, maintaining a credible strategic deterrent will be expensive, but failing to do so will result in a war that is far more expensive in both lives and resources.

I applaud the commission for their great work, and I strongly support their recommendations, I look forward to working with my colleagues on ways to implement them.

And with that, I now turn to the ranking member, Mr. Moulton.

STATEMENT OF HON. SETH MOULTON, A REPRESENTATIVE FROM MASSACHUSETTS, COMMITTEE ON ARMED SERVICES

Mr. MOULTON. Thank you, Mr. Chairman. I ask for unanimous consent for Ranking Member Smith's opening statement to be entered into the record.

The CHAIRMAN. Without objection.

[The opening statement of Mr. Smith can be found in the Appendix on page ?.]

Mr. MOULTON. As the chairman has said, we clearly have a lot of work to do, and not a lot of time to do it. And that means we need to move quickly, but it also means we need to be wise, we need to be smart about the investments that we make. I want to highlight some of the points in Ranking Member Smith's statement before we hear from our witnesses.

"I have often said that the world would be safer without nuclear weapons, and we should all continue to strive for that someday. But we also need to be realistic, as we face today's more challenging strategic environment, we must ensure that our nuclear deterrent is safe, secure, and reliable. And as we do that, we'll need to ensure that any changes to our nuclear force posture don't draw us into a massive nuclear arms race."

As the ranking member's statement acknowledges, maintaining strategic deterrents in such a complex threat environment requires a whole-of-government approach. The Department of Defense alone cannot be successful at deterring or prevailing in strategic conflict without leveraging our diplomatic and economic tools. His statement also highlights the fact that the report does not call for any immediate changes to our nuclear deterrent.

I agree that the DOD [Department of Defense] should focus on increasing conventional capabilities, a strong recommendation of the report, with a particular emphasis on innovation in the defense industrial base, and improving resilience across our existing space and nuclear command and control architectures. Lastly, I want to

associate myself with the ranking member's comments regarding the lack of prioritization or costs associated with the recommendations.

It makes it difficult for us to determine how to move forward without those and lends itself to those who say we should just do everything everywhere all at once. That of course is not possible, but it also could be dangerous. So, we've got to be wise about how we move forward, but we also have a lot of work to. Thank you again, Mr. Chairman.

I yield back.

The CHAIRMAN. I thank Mr. Moulton. Now I'd like to introduce our witnesses, the Honorable Madelyn Creedon is the Chair of the commission. She is the former Principal Deputy Administrator of NNSA [National Nuclear Security Administration], and Assistant Secretary of Defense for Global Strategic Affairs. And of course we have the Honorable John Kyl, he is the commission's Vice Chair, he spent 26 years representing Arizona in the U.S. House and Senate, and remains a tremendous leader on national security issues.

Welcome, and Ms. Creedon, we'll start with you, you're recognized.

STATEMENT OF HON. MADELYN R. CREEDON, CHAIR, CONGRESSIONAL COMMISSION ON THE STRATEGIC POSTURE OF THE UNITED STATES

Ms. CREEDON. Thank you very much, Chairman Rogers, Ranking Member Smith, Congressman Moulton, and distinguished members of the committee. Thank you for the opportunity to testify this morning on the report of the Congressional Commission on the Strategic Posture of the United States. Senator Kyl, the Vice Chair of the commission and I are pleased to appear here today to discuss the commission's bipartisan consensus report.

Our report and the 81 recommendations contained therein is consistent with our statutory charge, which was to conduct a review of the strategic posture of the United States. Including a strategic threat assessment and a detailed review of nuclear weapons policy, strategy, and force structure, and factors affecting the stability of new peer competitors of the United States, and peer, and near peer nuclear power competition.

Although the report is hard hitting, it is also fairly subtle, and requires a careful reading. This subtlety has led to some confusion about what the report does and does not recommend. We are not recommending substantial increases in U.S. nuclear force posture. We want to avoid a new nuclear arms race, and most importantly, we want to avoid a nuclear conflict, and thus we need a credible, conventional, and nuclear deterrent.

We do recommend that we plan and be prepared for a more challenging future, while fully supporting diplomatic and whole of government operations to reduce tensions and ensure strategic stability. The commission's report is threat informed, forward looking, bipartisan consensus. The report provides high level guidance to shape and ensure future decision makers have real options while generally refraining from choosing specific systems.

We provide characteristics of recommended capabilities but do not pick the winners and losers. The time frame for the report is

2027 and beyond, looking at least to 2035. The commission concluded that U.S. defense strategy and posture must change to properly defend its vital interests and improve strategic stability with Russia and China. Given the current threat trajectories, in the coming years the U.S. will face a world with two nations that possess nuclear weapons, nuclear arsenals on par with our own.

Facing, deterring two nuclear weapons is unprecedented. I would also note that this is the second nuclear posture commission, the first one issued its report in 2009 and hoped for a much better world. To quote, they said they rejected the vision of a world defined over the next decade or two by a renewal of competition for nuclear advantage among the major powers.

Unfortunately, that's not the path the world chose to go down. Today, the U.S. is on the cusp of a fundamentally different global setting that we did not want, and for which we did not plan, and are not well prepared. Our commission was very focused on being prepared, and laying the foundation now for decisions that might be needed in the future. We want to ensure that decision makers can make decisions, and that they actually have options to implement.

As prospects for agreements on nuclear arms control now appear bleak, we must consider that we may be in a situation where there is no strategic arms control treaty. That said, diplomacy must be strengthened, as there is no reason to stop pursuing broader risk reduction efforts when achievable, and in the U.S. national security interest. If there are opportunities for arms control or other strategic stability talks, military-to-military talks, confidence building measures, or other opportunities they should all be explored.

There are five assumptions that underpin our report. First, Russia and China will continue their respective adversarial paths, each growing the quality and quantity of their nuclear arsenals. China will continue to grow its conventional forces, including its space and cyber capabilities. Russia will grow its space and cyber capabilities, and each will continue their aggressive foreign policies, and seek to supplement the U.S. global leadership role.

Second, today's one major war strategy construct is no longer viable, particularly given China's current trajectory. The six foundational longstanding tenets of U.S. nuclear strategy remain valid. Four, strong allies and partners are essential, and make us all stronger together, but we need greater cooperation, coordination, and integration. The U.S. deterrent must be credible and seen that way by our adversaries as well as our allies and partners.

From a force structure perspective, the U.S. Nuclear Modernization Program of record must be fully implemented as rapidly as possible to deter Russia and China. The program of record is necessary but not sufficient to address the projected threat. And finally, I would like to highlight the report's reduction on infrastructure and the industrial base both at DOD and the National Security Administration, which are out of date, unusable, and in some cases literally falling down.

Both departments are struggling with supply chain issues, and neither have enough capacity to meet future requirements on a timely basis. So, we need investment in the DOD, and in NNSA in-

frastructure. Thank you very much, and I look forward to your questions.

[The prepared statement of Ms. Creedon can be found in the Appendix on page ?.]

The CHAIRMAN. Thank you, Ms. Creedon.

Senator Kyl, you're recognized.

STATEMENT OF HON. JON L. KYL, VICE CHAIR, CONGRESSIONAL COMMISSION ON THE STRATEGIC POSTURE OF THE UNITED STATES

Senator KYL. Thank you, Mr. Chairman. First of all, thank you and the ranking member for setting the stage with opening statements that really highlight the fact that we are entering into an unprecedented time, when for the first time the United States faces potential adversaries, both of whom would be nuclear peers with the United States. And that really was the beginning of our understanding of what we needed to recommend to the commission.

I'd like to reiterate a point that Madelyn made, that this was a consensus report. All 12 commissioners signed this document, and since you are aware that the commissioners were appointed by the leadership of the House, and Senate, and the Armed Services committees, you can appreciate the fact that we started out as a rather disparate group of people with differing points of view.

The reason I mention that is that knowing the commissioners and knowing that we provided a document that is a consensus, unanimous document, should give you some confidence that we would not be recommending that the United States start a new arms race, that is not something this commission would do, as Madelyn said. What are the facts? I'm a little sensitive to that critique because it reveals to me that— a misunderstanding of the facts that exist today.

After the Cold War the United States allowed our nuclear enterprise to atrophy, both the weapons and the delivery systems. Not long after that, Russia began a program of modernizing its forces, as you pointed out, Mr. Chairman, to the point that today Russia is about 90 percent through its program of modernization, and has resulted in a wide array of both weapons and delivery systems.

In the meantime, China decided to build up its military in a way unseen since the Cold War, and it is quite a ways down the road toward achieving its goal, which is parity with the United States and Russia, especially with regard to the nuclear forces. And where is the United States in the meantime? Well, we're out of the starting blocks, but as you pointed out, we're going to have a very difficult time even meeting the goals that we've set forward to try to achieve our existing program of record by the year 2035.

We will be fortunate if we can do that. So, that's where we are, we're obviously not starting anything, we're playing catch up, and it's going to be a pretty tough job to catch up. The other thing that I'll mention relates to a point that Representative Moulton made. Your remit to our commission was not to develop a cost analysis, and we did not do that, as you point out.

I think it would have been too difficult to do in any event, because much of what needs to be done in the future has yet to be decided. The commission can see very clearly what kind of require-

ments we need to meet, what kind of capabilities we need to have, but precisely what weapon systems comprise that suite will remain to be seen, and therefore it's very difficult to put a cost to it.

But I would make this point, when Representative Moulton, you say we may need to set some priorities within the overall budget, I would push back on that with this foundation. Every recent Secretary of Defense and Joint Chiefs Chairman has said that the strategic posture, the strategic deterrent, and in particular our nuclear deterrent is the number one priority of the Defense Department.

And if that's the case, then we have to act like it's the number one priority. That means that when you set priorities, this has the top priority. And we shouldn't be fighting within the deterrent program, our strategic deterrent program for the dollars that are needed to achieve the deterrent that we need. What are we all about here? We're trying to prevent war.

What is more important to the American people than deterring a would be opponent from being tempted to think that they could attack the United States in some way and be better off for it? Our deterrent must persuade them that that cannot be. So, in mentioning this consensus report, I hope that there is some acknowledgment that these twelve very different people up here would not be recommending something foolish.

We put a lot of thought into this. And the specifics with regard to various weapon systems in the future, as Madelyn said, will have to be deferred until the people at the Defense Department R&D programs and others decide what the best way to satisfy the requirements is, our job was to set forth the requirements.

Final point, we recommend that the leadership of the Congress and the Administration must take the case to the American people of what the threat is, what the stakes are, and what the solutions to the problems are, and what those costs are. If you're going to be able to sustain the budget that will be required to meet these requirements, you're going to have to have the support of the American people.

And that means you need to take the case to the American people. And as a result, our recommendation is very firm that the leadership of this committee, and the other people in Congress who have the expertise such as yourselves need to take the lead in discussing these important subjects with the people who ultimately have to make the decisions to approve them. Thank you, Mr. Chairman.

[The prepared statement of Senator Kyl can be found in the Appendix on page ?.]

The CHAIRMAN. Thank you, Senator, I completely agree. I do want to make sure everybody is aware, we're going to have votes called in about an hour, so I want us to move quickly, so I will limit myself to one question. I love the report, I am curious though, and I share your sentiment, Senator, that this committee, as well as our counterpart on the Senate side is going to have to really be vocal about this.

Do y'all have a plan to get in front of Secretary Austin, DEPSEC [Deputy Secretary of Defense] Hicks, Chairman Brown, and NSA [U.S. National Security Advisor] Director Sullivan with your re-

sults so that the administration can be exposed to what your unanimous recommendations are?

Ms. CREEDON. Thank you, Chairman Rogers. So, we don't yet, we have requested. Obviously they're a little bit busy these days.

The CHAIRMAN. We all are, but this is very, very important.

Ms. CREEDON. It is. We did have the opportunity before we released the report to pre-brief the NSC [National Security Council], the Nuclear Weapons Council, and NNSA, and subsequent to the release of the report we were able to brief the commander of U.S. Strategic Command. So, we are making progress, and I hope that we are able to have some more in depth meetings with both Secretary Austin, and Deputy Secretary Hicks in the near future.

The CHAIRMAN. Excellent, thank you.

I will Yield to Mr. Moulton.

Mr. MOULTON. Thank you, Mr. Chairman, I'll keep my questions quick and short as well. You talked about the need to increase investment in conventional forces. This is maybe not what people expected to come out of your report as one of several recommendations. Can you explain why that's important, and where that fits into nuclear deterrents?

Senator KYL. Mr. Chairman, Representative Moulton, yes. The commission came to the conclusion that the best way to deter a nuclear conflict is to deter a conventional conflict with the nuclear powers. Because it is most likely that we would escalate to a nuclear conflict as a result of being in a conventional war with another nuclear power. And that's why we emphasized the need to first of all create the deterrent with our conventional forces.

And that's where the bulk of the spending, by the way, that we recommend would occur in the early years, building up our conventional forces. Most of the expenditures on the nuclear side would come after that.

Mr. MOULTON. So, I've been in, seen some of these war games where exactly what you described becomes a problem, and a conventional conflict can essentially run out of conventional responses, and so it becomes nuclear. Can you just explain that for the American people? Both how a conventional conflict could become nuclear, but also separately how simply having conventional forces could deter a conflict in the first place?

Senator KYL. Yes, thank you, Mr. Chairman, Representative Moulton, it's a great question. And the short answer is that if you look at a case like Ukraine for example, where at a point the Russians were being beaten back and were in a mode of retreat. And there was a lot of speculation at that time that because they didn't have the conventional means to prevent the rout, that they may have to use nuclear weapons, tactical or non-strategic nuclear weapons, to cover their rear in this case, to cover their retreat so that they wouldn't be defeated.

And that's just one example of how in a conventional conflict a party could conclude that the best way forward for that party is to use the tactical nuclear weapons that they have. Well, it's a pretty short step, and as you know, there's really no clear definition between a strategic and non-strategic, or tactical nuclear weapon, but it's an escalatory ladder that you can climb pretty quickly between

a lower yield tactical type weapon and using higher yield almost strategic level weapons.

Where this could come into play with the United States for example is if there were an attack on a NATO [North Atlantic Treaty Organization] country, and we had an obligation to be involved, and the conventional deterrent wasn't adequate to prevent this nuclear escalation, we could find ourselves in that situation relatively quickly, that's what we don't want to do.

So, if we can have a conventional deterrent that would dissuade any potential adversary from concluding that they could defeat us conventionally, we would have the best chance of also being able to avoid a nuclear conflict.

Mr. MOULTON. Well, thank you very much. I mean, I think we can all agree that we don't want a nuclear conflict, and explaining this is really important because people often ask why are we investing so much in nuclear weapons, why are we investing so much in conventional forces, in the DOD every year. And ultimately of course, we all agree that we want to deter war, and specifically we want to deter nuclear war.

I'll also just add very quickly that you were quick to criticize my discussion of prioritization, but you've just described something that we need to invest in, which is separate from our just simply strategic deterrent. If we only had one priority then I would agree with you, that we would only invest in nuclear forces. But when I talk about prioritization, it's figuring out this balance.

If you say we have to improve our conventional forces, then we have to figure out how much we put into that versus our nuclear forces, and the right balance is going to be difficult to find. But that's exactly why we have your commission, and it's been very helpful, and thank you very much.

Senator KYL. Thank you, Mr. Chairman, Representative Moulton, might I respond just very briefly? We conclude that the strategic deterrent is not just a nuclear deterrent, it is a combination of conventional and nuclear. And so, when I say that we shouldn't have to prioritize to build our strategic deterrent, what I'm really saying is that we shouldn't have to choose between conventional and nuclear.

They are one and the same effort to provide a deterrent against any enemy attack. So, if you view the conventional side of the equation as part of the strategic deterrent, we shouldn't have to make those tough choices between one or the other, we can do both.

Mr. MOULTON. That's very helpful, thank you for that clarification.

Mr. Chairman, I yield back.

The CHAIRMAN. Thank you.

And the Chair now recognizes the gentleman from South Carolina, Mr. Wilson.

Mr. WILSON. Thank you, Mr. Chairman, and thank both of you for being here today, and how important it is, and I think it's really important too, to see that there is such bipartisan support for your recommendations, and what should be done for deterrents. Chairwoman Creedon, with that, I appreciate that the communities of South Carolina and Georgia are extremely supportive of the pluto-

nium pit production mission at the Savannah River Site in South Carolina.

I am grateful that I'm the only member of Congress who has actually worked at the Savannah River Site, so I have a special appreciation. Maintaining enacted 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 describing the pit production challenge, the previous administration's Nuclear Posture Review stated that failing to achieve a production capacity of 80 pits per year by 2030 quote "Would result in the need for a higher rate pit production at a higher cost" end of quote. The commission recommends Congress fund the full range of NNSA's recapitalization effort such as pit productions, and all operations related to critical materials.

What can Congress do to help meet the goal of producing plutonium pits at Savannah River Site as close to 2030 as possible?

Ms. CREEDON. Thank you very much for that question. It is important, and as you mentioned, the infrastructure at the National Nuclear Security Administration needs a considerable amount of work. There is a lot of work that has been done on the science side, and that's important, and it has to continue to allow us to continue to develop and modify as necessary new nuclear weapons.

But the actual production infrastructure, as you mentioned, is the one that needs the most attention. So, for your question, among other things, I think the NNSA, obviously they need the money to do these things. They need the money on a regularized basis, they need enough money so that they can implement on a practical basis.

In other words, as you know, the NNSA is incrementally funded, but having more money in the right years so that they can plan and execute appropriately is important. And I have to mention that not having CRs [continuing resolutions] is also important, so that they have assured funding coming in. The other thing is people, there is a significant shortage of the right people to do all these things.

Not only as we think of the scientists and engineers, but also in the crafts, electricians, welders, everything down the road. So, they need support, they need money, and they need people.

Mr. WILSON. And I'm grateful that the technical college systems of South Carolina are addressing the critical needs of employees. And Senator Kyl, your report recommends the U.S. quote "Urgently deploy a more resilient space architecture and adopt a strategy that includes both offensive and defensive elements to ensure U.S. access to, and operations in space" end of quote.

You just happen to have hit on a topic that we have a visionary, Chairman Mike Rogers, who has been saying this since the time of Abraham Lincoln. So, with that put in place, can you talk more about the need for this, and why an approach that focuses on defensive resilience must include a space domain?

Senator KYL. Yes, thank you, Mr. Chairman, Representative Moulton. The threat briefings that we received leave no question that both China and Russia, but particularly China see space as a war fighting domain, and both of them view the United States' cur-

rent array of satellites and reliance on those satellites as the soft underbelly of the United States posture.

So, they are very aggressively pursuing both defense and offensive weapons to deal with our space capabilities. The United States has to respond to that. In addition to that, we know that space can be the place where our other assets can be magnified in capability. For example, missile defense for the homeland to deal with a coercive kind of attack might be best dealt with by the array of space assets that we can bring to bear upon that kind of an attack.

And one of our recommendations is that the Defense Department explore that, and if it's feasible, to develop a system, both offense and defense, which could deal with a coercive attack. There is no question that in the next conflict, if there be one, space will be a critical aspect of that conflict.

Mr. WILSON. Thank you very much.

I yield back.

The CHAIRMAN. Thank you.

And the Chair now recognizes the gentleman from California, Mr. Garamendi.

Mr. GARAMENDI. Thank you, Mr. Chairman. Before I begin I'd like to request permission to enter into the record, an op-ed by the late Senator Dianne Feinstein, "There's No Such Thing as a Limited Nuclear War", without objection. Thank you. We often hear that the term strategic, I know that we on this committee often think of capabilities, particularly our nuclear assets and their global impact.

But another definition of strategic comes to mind for me, the idea of a grand strategy, or aligning potentially unlimited aspirations with necessarily limited capabilities. I know that we're going to have to make hard decisions to ensure that we provide reasonable oversight, avoid unchecked and rampant spending on wasteful or unnecessary programs, and also to ensure that our spending truly, truly provides for our national defense.

So, I want to thank the committee for its work, and I'm thankful for your highlighting arms control and international partnerships in your report. I'm also worried that our strategic posture is missing strategic, or strategy. We all know that we face competition from Russia and China. We also know there's a growing risk of confrontation, and that we need to find ways to de-escalate.

For example, how often do we allocate our resources to have the most efficient way to achieve peace and stability? My questions today really go to this report, and how you set it up to win a war, but instead how do we prioritize our efforts to prevent a conflict from ever emerging? How do we achieve that? You argue that because of the rising threats, the United States, and its allies and partners must be ready to defer and defeat both our adversaries, you said China and Russia.

My question is what would it mean to defeat them? Is it a nuclear war against two nuclear armed adversaries that somehow we could defeat them and win? I think not. But my question to both of you, is it necessary to defeat our competitors to provide security for the American people? For example, wouldn't arms control and de-escalation be preferable to a new arms race? My question.

Ms. CREEDON. So, thank you very much, Representative Garamendi. So, of course, the answer is yes to your last question. It would be better to have effective strategic arms control that was both trilateral, and that was consistently applied and consistently complied with. So, obviously that is appropriate.

But right now, we are actually facing a situation where we may not have any strategic arms control agreements in place. And this is a very different world, we have both Russia and China are on the cusp of really having a three-peer competitor environment. So, we need to have a strategy that deters. To be effective, deterrents must be credible, it must be believable, and not only, as I mentioned, not only to our adversaries, but also to our allies.

And our allies have to be part of this because together we are all much stronger if we are integrated in this. But when you talk about strategy, part of the strategy is to deter conflict in the first place. And to deter conflict in the first place, that deterrent has to be credible. And to be credible, an adversary has to believe that if they start a conflict we have to be able to defeat them.

Mr. GARAMENDI. Excuse me for interrupting, but then your argument indicates that our current nuclear systems are not credible, is that what you're arguing?

Ms. CREEDON. No, not at all, sir. Remember, our commission report is very much forward looking. So, we look into the future, 2027 and beyond, and we see a threat trajectory that's going in a certain direction. Assuming that threat trajectory continues, we have to make some changes in our strategy, and it's those changes, primarily conventional, some nuclear, but primarily conventional, are going to be needed.

Tankers is a good example, to keep us out of that conflict to begin with. And we have to worry about not only one conflict, we have to worry about two conflicts, either sequential or simultaneous. It's a new environment, we have to be prepared for this, and plan to be prepared for this.

Mr. GARAMENDI. Senator?

Senator KYL. Thank you. Mr. Chairman, I subscribe to the comments that Madelyn has just made to you. Obviously, deterrence is in the mind of the person you're trying to deter, and they have to believe that you're serious enough about trying to prevent conflict that you'll do whatever is necessary to defeat them should they be tempted to try to attack you.

And therefore we have to have the kind of forces in place, both conventional and nuclear, that provide that kind of deterrent.

The CHAIRMAN. The gentleman's time is expired, I will admit into the record the opinion piece by Senator Feinstein that he requested.

With that, we will move to Mr. Lamborn from Colorado for 5 minutes.

Mr. LAMBORN. Thank you, Mr. Chairman, and I thank you both for your contributions to our country. For either of you, I applaud the commission's recommendation that the U.S. must field sufficient conventional forces to effectively deter and defeat simultaneous Russian and Chinese aggression in Europe and Asia. Hypersonic weapons are said to be a conventional weapon with strategic implications.

Our two biggest adversaries are well ahead of us in developing offensive hypersonic weapons, for which we have very little defense by the way. Can you elaborate on the deterrent value of offensive hypersonic weapons against coercive attacks by our adversaries?

Ms. CREEDON. Thank you very much for that question. So, we looked at a range of conventional capabilities that we need to develop, among them is the hypersonic systems. But it isn't just the hypersonic systems, this is one of the things that we need as a nation to get much better at, and it's incorporating new technologies, including hypersonics.

And as we think about new technologies, and think about how to deploy new technologies, we also need to think about our industrial base, and how to get new players into this. If we are going to be truly innovative, we have to figure out ways to be able to bring these new innovators, the smaller companies, the smaller businesses, the ones who are really thinking about how to do things more effectively, how to do things in a less expensive way.

How to take greater advantage of the capabilities that we have, and the hypersonics are simply one of them. Thank you.

Mr. LAMBORN. Thank you.

Senator KYL. Mr. Chairman, I'll add that this is one of the areas in which we focused on defense, because clearly the possibility of an attack coming from one of these hypersonic weapons would be a preemptive, or out of the blue kind of attack, it could be decapitating. And therefore, retaliation is not the only, or the best solution to it.

Therefore, one of our recommendations is to strongly try to improve our air and missile defense systems, both against hypersonic weapons, cruise missiles, improved ballistic missiles. The Russians have devised a whole new suite of platforms with which to deliver their nuclear weapons, and this is why we stress the need for more research and development of defensive capability against these new weapons.

Mr. LAMBORN. Very good, thank you. For either one of you, Russia and China are increasingly working together to accomplish strategic goals. Did the commission contemplate the possibility that Russia and China could coordinate their nuclear threats in such a way that the numbers we adhere to under New START [New Strategic Arms Reduction Treaty] are inadequate?

Ms. CREEDON. So, we certainly spent a lot of time looking at the possibility of collusion between Russia and China. It's one of the reasons that we made the recommendation that we did, that we have to look at a two-war strategy, and that two war strategy could be simultaneous, or it could be conventional. So, whether there is overt collusion in some sort of an aggressive behavior, we did feel strongly that the possibility of opportunistic aggression was also really there.

But it's really more, I think, on the conventional side. Although we do have to look broadly at our nuclear capabilities vis a vis two nuclear peers. So, it's one of the reasons why the report concluded that China is no longer a lesser included case in how we think about our planning and doctrine. Thank you.

Mr. LAMBORN. Senator Kyl?

Senator KYL. Thank you, Mr. Chairman. I think the key here is that we don't need to decide whether an attack is necessarily going to be coordinated between these two adversaries. It's enough that it's opportunistic. In other words, we're in a conflict with one, and the other sees that this is an opportunity for us to do what we've always wanted to do, and the United States is otherwise occupied, so we'll try our aggression.

Either way we have to be prepared to deal with both of them simultaneously. And that's why we're going to have some new challenges to deal with this entirely new environment from that which we previously planned, which only dealt with the Russian nuclear side of the equation.

Mr. LAMBORN. You were there when the Senate passed the New START Treaty, are those numbers adequate now that China is in the picture?

Senator KYL. Well, Mr. Chairman, that's the real question. Our current program of record for our nuclear enterprise is sized to the Russian threat. And under the New Start Treaty we, both sides had the requisite forces that we thought were necessary. You're now adding another component, and the Chinese goal is to have parity with both Russia and the United States.

Obviously that adds a new challenge that we've got to plan for. And our report in several different places notes the fact that whether this is increased size of our weaponry, or composition, or how we deploy them, or all of the above, all of that has to be considered in deciding exactly what our new force structure has to look like.

The CHAIRMAN. The gentleman's time has expired.

The Chair now recognizes the gentleman from Washington State, Mr. Smith.

Mr. SMITH. Thank you very much, Mr. Chairman, I apologize for being late, I had a previous meeting that I had to be at until 10:00. Two areas of questions, one, in terms of the resiliency and survivability, regardless of how many nuclear weapons or what platforms they are, our command and control structures, and the ability to make them less vulnerable, talking about space command and control, the vulnerability of an attack that could render our ability to operate regardless of how many weapons we have, to eliminate that.

What's most important for us to do make sure that those systems can be protected so that our infrastructure can work in a crisis?

Ms. CREEDON. Thank you very much, because that is an important area, it's also an area that doesn't get talked about much. Notably, because so much of it is classified. But we did recommend that a lot of focus and attention be placed on the modernization of the nuclear command and control system. And this also includes how to make all of these various systems more resilient.

So, with a space system, maybe it's multiple system, maybe it's protection protecting those systems. But part of it is also the early warning part of the nuclear command and control system, and making sure that that doesn't look like a very large target at the outset so that we lose our eyes, if you will. So, looking at how to keep early warning systems very accurate, very resilient is a large part of this.

The other piece of making sure that the President always has time and options to consider, and the nuclear command and control system has to be the system that provides him that time. So, it's incredibly important, and we have to really focus this, and it's hard because it's hard to talk about.

Mr. SMITH. Understood. The big thing that was missing from this report in my view was an analysis of the cost involved, and that's really what we are facing on this committee. Because every major system that we're talking about upgrading right now is significantly above budget. Whether it's the Sentinel GBSD [Ground Based Strategic Deterrent], I guess the B–21 is kind of hanging in there, but there are a variety of systems.

Looking a pit production it is overwhelming, and when you lay out all of those options, do you have any ideas for us where, okay here is a more cost effective way to make sure that we have an adequate deterrent? And obviously I said this in my written opening statement, the ground based system, that is a heck of a lot of money to stick things in a fixed place in the ground that are incredibly vulnerable, and have all manner of different problems.

Now in an ideal world, would you like to have it all? Sure. But if you have to make choices in terms of the budget, keeping in mind the questions we've already heard about conventional needs that are there as well, the commission really didn't look at it and say gosh, for [$]100 billion less we could do this, we'd meet our needs, and that would really free up money elsewhere. Is there anything you could say to us about that?

Senator KYL. Mr. Chairman, Representative Smith, we spent a lot of time considering that question. Of course, our writ did not include the development of cost estimates for all of these things, we did not do that, as you point out. But just to give you one illustration of the kind of question that we tried to answer here, the ground-based interceptor system that we have today, I'm not sure if that's what you were referring to by our ground-based missiles, but our current——

Mr. SMITH. I was referring to the ICBM [intercontinental ballistic missile] replacement.

Senator KYL. Well, if I could just stay on the ground based——

Mr. SMITH. That's fine, yeah.

Senator KYL. Defensive system, because to some extent they're related. This is primarily to deter North Korea today. And it makes sense because the kind of system that we have is adequate today to deter North Korea. North Korea is not standing still, however. We recognize that over time we're going to have to have better and more capable GBI [ground-based interceptor] kind of systems to deal with North Korea.

The question is do we just continue up that ladder, or might there be a more cost-effective way to deal with that threat? Certainly if you're dealing with a coercive threat from China or Russia, you're going to have to have a more cost effective way to do that. And that's why we say with regard to the GBI kind of program, it may have a limit, and we may need to turn to more of a space-based component which has much greater potential capability against the larger kind of threat.

Especially coming from Russia or China, and with the technological developments today in reducing launch costs and other expenses in putting satellites in space, we think the time might well have come that this is the place where we could invest more money economically to deal with the problem rather than just continuing to build our GBI system up.

Mr. SMITH. Thank you very much, thank you, Mr. Chairman.

I yield back.

The CHAIRMAN. Thank you.

The Chair now recognizes the gentleman from Virginia, Mr. Wittman.

Mr. WITTMAN. Thank you, Mr. Chairman. Senator Kyl, Ms. Creedon, thank you all so much for your work on the commission, and thanks for the commission's report. I want to go to one section of the commission report that speaks about the development and deployment of theater based nuclear systems.

And the report describes that this system should exhibit the ability to be forward deployable, survivable against a preemptive attack, has a low yield option, is prompt and can penetrate very sophisticated air and missile defense systems. And I'm only aware of one system that is deployable in the near term, is cost effective, and is there before us today, and it's the nuclear armed sea launched cruise missile better known as SLCM–N.

And I know your report doesn't advocate for a particular platform, but is it your view that the development of a SLCM–N capability would help us address the deterrents challenges that you so eloquently point out in your report?

Ms. CREEDON. So, thank you very much. So, we spent, as you might imagine, we spent a lot of time discussing theater nuclear systems. And we also spent a lot of time looking at the threat, particularly in the Asia Pacific, and also the capabilities that we do have already, the B–61s in Europe. And when we looked at that, and we looked at the threat trajectories, there were a number of things that we itemized that would be potential capabilities, potential characteristics, as you highlight, they're mostly laid out on pages 47 and 48.

And so, we go through these characteristics, these capabilities that we want. We intentionally did not pick winners and losers in any given system. But that said, I mean I think there was agreement, however one felt about the SLCM–N, that the SLCM–N certainly would address some of these capabilities. But I just want to reiterate that the commission itself did not intentionally pick specific winners or losers.

Mostly because we were so forward looking our report. We want the Defense Department to determine what they really need.

Mr. WITTMAN. Got you, very good. Senator Kyl?

Senator KYL. Yes, the answer to your question is yes, SLCM–N would achieve the objective that we set out. Whether there are other systems that would, would be left to the decision makers in the future, including all of you.

Mr. WITTMAN. From your perspective, how important is time in this? I think what we're seeing is an accelerated effort by China across the nuclear spectrum in the threat that is developing at orders of magnitude against the United States. How important is

time in this deterrent effect on a low yield option as a deterrent to China?

Senator KYL. Mr. Chairman, if I could just speak generally rather than to the specific requirement, you put your finger on probably the key point here. We don't have any more time. As one of the witnesses said, we've used up all of our work around, and the schedules, both for the refurbishment of the nuclear warheads, and the development of the new platforms is a tight schedule.

And while the operatives say that they're going to do their best to meet the schedules, the reality is we've found delays here and there, and it's very difficult to imagine that we could meet the schedule. As a result, there are a couple of charts in our report which show the potential for a deterrents gap. Which in effect say here's where we are today, we're going to decline in deterrents because certain systems have to be retired.

They simply won't work anymore. And by the time we get the new systems online to replace them, we will have spent time in an area without an adequate deterrent. That's the threat that we have, and that's the thing that we most have to try to avoid.

Mr. WITTMAN. To both of you, is it your view that an 80 percent solution available in the next 18 to 24 months would be preferable to the 100 percent solution available in the late 2030s?

Ms. CREEDON. So, thank you for that question. I think, and I'm going to go back to there's a lot of analysis that this report lays on the doorstep of the Defense Department, the Administration, Congress, and what is actually the right system is part of what the analysis needs to be. So, yes, the SLCM–N would have the advantage probably of being sooner. But the actual analysis has yet to be done by the Department.

Mr. WITTMAN. Very good. Senator, any closing thoughts?

Senator KYL. Mr. Chairman, Representative Wittman, of course there is no good answer to your question. I just go back to the point I made earlier, which is that if this is, if our strategic deterrent is the number one priority for our military as our Defense Secretaries and Joint Chiefs Chairman have all said, and which I think our commission certainly agreed with.

Then we have a lot of other things which we can prioritize, but this has to be number one priority. And going back to your previous question, it's not just a matter of what we ultimately develop, we have to be very cognizant of short run gaps in deterrents which will result from the fact that we are replacing whole systems in a just in time manner, and we may not be just in time.

Mr. WITTMAN. Thank you for that.

The CHAIRMAN. The gentleman's time is expired.

The Chair now recognizes the gentleman from California, Mr. Carbajal.

Mr. CARBAJAL. Thank you, Mr. Chairman, and thank you to the witnesses here today. I am gravely concerned about nuclear proliferation, and sincerely hope my colleagues share that concern. It is in the best interest of all human life to pursue global disarmament. I do understand the need to maintain our triad in order to deter adversaries.

But we hope we can strike a balance of effective deterrents with costs, and more importantly, protecting human life. In the report

you mentioned that most commissioners believe it is inevitable that the size of the U.S. nuclear stockpile and the number of delivery systems should increase. Ms. Creedon, in your opinion, at what point does building a bigger stockpile become redundant?

Does it matter if we have, let's say for the sake of this example, one thousand more or one thousand less nuclear weapons than our peer adversaries if we all have enough to wipe out life as we know it?

Ms. CREEDON. So, thank you very much for that question. And first, I want to very much support your initial comment about nonproliferation. This is a very important aspect of this, this is nonproliferation, proliferation prevention is very much the flip side of deterrence. And one of the things that we did mention briefly in this is that even though we are looking at a world without a bilateral arms control treaty for the first time in a very long time, we do have to continue to work and be prepared for the time when we have the ability, hopefully, possibly, to get another arms control agreement in place.

Assuming it's in our U.S. national interest. To make sure that if there is one, it's viable, it's verifiable, and we have the technology to be able to do all the things needed in a treaty. The research and development that goes on at the National Nuclear Security Administration is very important, making sure that we are looking at these capabilities now.

So, again, planning for the future, and having these capabilities in the future. But to the rest of your question, numbers are important, but they really are not the full discussion here. And sometimes I think we get a little distracted by the conversation on numbers. Because what we really talked about is we could need more, we could need different, we could need both.

But it really depends on how the Department of Defense, how the U.S. Strategic Command, how U.S. policy puts in place those things that the nuclear weapons need to hold at risk. And that's the discussion, again, that has to happen. So, when I said we left a lot of analysis at DOD's doorstep, we did, and this is part of it. How many do we need, and what do we need them for?

Mr. CARBAJAL. Thank you. Talking about numbers further, Senator Kyl, we don't have an endless budget, and the cost of these modernization programs continue to grow, and schedules are delayed further and further. Interestingly the report did not include any cost estimates, because I guess they shouldn't matter.

Do you think including information regarding the cost of these programs would have better informed Congress? And if you had included a cost analysis, would it have impacted any of your recommendations?

Senator KYL. Thank you. Mr. Chairman, Representative, I don't think it would have changed any of our recommendations, to answer your last question. In our writ, there's a statutory writ that we were given, and we were not asked to provide cost estimates, but you could consider that a bit of a cop out, but the reality is it would be very hard for us to do that in any event.

And the reason is because a lot of the things that have to be decided, as Madelyn pointed out, are to be decided in the future based upon the situation that exists at the time. What we pri-

marily say here is we have to make decisions now to make sure that we have the capacity to build whatever we're going to need to build. We're not sure right now what all of that is.

But if we don't make decisions now to enable us to have the capacity, then when we finally do decide it's going to be too late if we haven't provided for sufficient capacity. And that's why we say that has to be decided now. Just to put this in context, our current program of record, which we say has to be completed first, is about $75 billion a year, it's about 7.5 percent of the defense budget.

That's a very small amount of a budget which today, is about 3 percent of overall GDP [gross domestic product] of the United States, as compared to twice that much during the 1980s. So, our current program of record I think is pretty hard to criticize as being too costly, and what has to be spent beyond that will have to be determined by you in later years to reach the capabilities that we say are necessary, and that we recommend in our report.

The CHAIRMAN. The gentleman's time is expired.

The Chair now recognizes the gentleman from Wisconsin, Mr. Gallagher.

Mr. GALLAGHER. Thank you, Mr. Chairman, thank you both for being here today. In your recommendations, the commission cites the need to prioritize funding and accelerate long-range non-nuclear precision strike programs to meet the operational need, and in greater quantities than currently planned.

Senator Kyl, you stated in your Senate testimony that the first thing, and I'm quoting "The first thing we've got to do is have a conventional capability which is so dominant that no party would ever consider a nuclear attack against the United States." In your opinion, are U.S. stockpiles of long-range precision fires, in your estimation, currently inadequate to contend with adversary capabilities in the security environment we face?

Senator KYL. Thank you, Mr. Chairman, Representative Gallagher. I think that's one of the recommendations we make, that one of the shortages that we've got to deal with is precisely this shortage, to have the conventional capability to deter an adversary. So, the answer is yes, it's inadequate today.

Mr. GALLAGHER. So, just to put a finer point on it, when it comes to long range precision fires, particularly long-range anti-ship missile JASSM [Joint Air-to-Surface Standoff Missile], JATM [Joint Advanced Tactical Missile], you would agree that it's absolutely essential, and has key impacts on our nuclear security to surge production and stockpile key long range precision fires?

Senator KYL. Mr. Chairman, Representative Gallagher, we don't specifically talk about surging production or stockpiling, but the answer to your question is yes.

Mr. GALLAGHER. Thank you. Help me, and I don't know who is best to answer this question, one thing I'm struggling with is to understand the scale of the PLAs' [People's Liberation Army's], not just conventional build up, but its nuclear build up in particular in a way that makes sense with some frame of reference. Could you help me, sort of in a way that I could communicate to my constituents that would make them care about it and communicate why it matters.

Sort of put what we're seeing in China in the appropriate context, historical or otherwise.

Ms. CREEDON. Thank you. So, in our report, in the threat section of our report we detail the rapid growth on both conventional and nuclear systems that the intelligence community has seen in China. Also looking at some of the stated goals that President Xi has announced, and other activities that are going on, not only on the land based conventional, but they're developing a real triad on the nuclear side.

They're rapidly developing space capabilities. So, if you look forward, and that's what our whole report is trying to do, look forward into 2027 and beyond, somewhere in the '30s, if they keep on their current trajectory, maybe a little bit sooner, we are looking at a true peer, both on a nuclear and a conventional perspective. And this is an area that we've never been in before, where we have two nuclear peers.

And also a regional power in China who is looking to be a global power, to really challenge the U.S.'s global leadership, and break up our alliances. So, it's a very different world, but hopefully in our report we captured a little bit of the essence of this threat, and why it's so concerning.

Mr. GALLAGHER. Would it overstate the case to say that their nuclear and conventional build-up, I guess just focus on the nuclear, is unprecedented, or unprecedented in modern times?

Ms. CREEDON. So, certainly the rate at which they're building up has been very surprising. And I should probably leave it at that.

Mr. GALLAGHER. Okay.

Senator KYL. Mr. Chairman, Representative Gallagher, the only thing I would add to that is that one of the witnesses came before us and said one thing about the Chinese is that they're always ahead of schedule. Whenever they say they're going to achieve a certain system by a certain time, they beat that schedule. So, I think Madelyn is exactly right in characterizing it the way she did.

Mr. GALLAGHER. Is there anything about, and forgive me, I do conventional, not strategic, their nuclear doctrine in the way that we tend to sort of obsess over Russia's escalate to de-escalate. Is there anything in particular we should know about the PLA's nuclear doctrine that you think is important for us to understand? Microphone please.

Ms. CREEDON. They do have a lot of writings that we should certainly pay attention to. But one of our recommendations sort of buried deep in the report is that we need more capabilities within our intelligence community, within our policy community, to really understand how their conventional and nuclear policy doctrines are evolving. So, we need to put a lot of focus and attention in building these capabilities so we understand just that.

Mr. GALLAGHER. My time is expired, thank you.

The CHAIRMAN. The Chair now recognizes the gentlelady from California, Ms. Jacobs, for 5 minutes.

Ms. JACOBS. Thank you, Mr. Chairman, and thank you both for being here today. You know, I think it's important we consider the implications of expanding our nuclear arsenal as the report suggests. And I know we've talked a little bit about how that could be

contributing to a global arms race, and if so what are the consequences of this.

Given recent GAO [U.S. Government Accountability Office] reporting on DOD weapons acquisition programs and NNSA infrastructure efforts, it's kind of difficult to find a bright spot in the modernization of strategic forces. All indications point to substantial schedule slippages and cost overruns. And Senator Kyl, I know you said that it's our responsibility to educate the American people about the situation.

But I wanted to follow up on my colleague Mr. Carbajal's question. The commission seems to make very significant investments that would cost several billions of dollars in this environment, and with competing national and international concerns. How do you reconcile the recommendations of the report with budget constraints generally?

Senator KYL. Mr. Chairman, Representative Jacobs, no, we did not attempt to develop a cost estimate because most of our recommendations relate to capabilities rather than specific systems, so we can't do that yet.

Ms. JACOBS. Sure, I understand that you can't give us a cost estimate, but everything in the report is going to cost a lot of money. So, did you take the constraint of generally the fact that there's not an unlimited budget into account when you were working on the report?

Senator KYL. Mr. Chairman, Representative Jacobs, we took into account the fact that our military leaders have said routinely that this strategic deterrent is the number one priority for them. And if that is the case, then we decided we would recommend what we felt was necessary, and leave it up to you, and the President, the executive branch, to determine precisely what the programs are and how they're to be funded.

Ms. JACOBS. Thank you. I also wanted to ask, you mentioned in your testimony that this was a consensus report, that all the commissioners signed on, could you talk about what some of the points of contention were in the debate, or where there were disagreements?

Ms. CREEDON. Well, thank you very much. But as you might imagine, we had lots of robust discussions, and we wrestled with every word in this report, that's why it is a consensus report. But in the end, because of our commitment to consensus, we were able to get there, and everybody wanted to get there. But on the specifics, no, that's within the four corners of our robust debate and discussion.

Ms. JACOBS. Got it, thank you. And lastly, the U.S. land-based ICBM fields are often referred to as a sponge to soak up an opponent's nuclear forces. If that's the case, can you talk about why you think it's important that we modernize that arm of the triad? As long as we have enough Minutemen missiles and silos, why do we need to spend so much more money on the Sentinel program?

Senator KYL. Mr. Chairman, Representative Jacobs, the fact is that our current system has deteriorated and aged to the point that we wouldn't be confident in the deterrent value of it on out into the future. When you see the photographs of these silos that house one

of the most sophisticated weapons ever devised by man, you wonder.

The walls are bulging, there's rust, there's wires that are no longer functioning properly. These silos have to be refurbished, and new missiles put in them, because the current system is rapidly aging out.

Ms. JACOBS. Sure, I understand that, if the purpose was to use them as a deterrent, to use them. But the idea is that the land-based part of the triad being referred to as the sponge is mostly so that our opponents would use their weapons to attack those instead of the other parts of our triad.

Senator KYL. Yes, Mr. Chairman, Representative Jacobs, the whole point is if the adversary believes that our system no longer functions, then they don't need to try to wipe it out at the beginning of a conflict. They have to believe that this is a fully functioning, and very dynamic, and vibrant system in order to be deterred.

Ms. JACOBS. Got it, thank you.

Mr. Chairman, I yield back.

The CHAIRMAN. The gentleman from Florida, Mr. Gaetz, is recognized.

Mr. GAETZ. Thank you, Mr. Chairman. Thank you for bringing your experience to bear to advise on how to maintain the strategic deterrent. I focus a lot on hypersonics here, and so I was wondering what your perspective was on how our current hypersonic capabilities compared with these two near peer adversaries was contributing to that sense of deterrence.

Ms. CREEDON. Well, sort of simply put, we're a little behind in terms of the development of our hypersonics capabilities. There are clearly some extraordinary programs. The other piece of the hypersonics that we should also look at is some of the new systems of China. One of the systems that we talk about in our report is the FOB, the fractional orbital bombardment system.

And that's one of the areas where we also have introduced the concept of some possible arms control, that's a suggestion for that, or for confidence building measures along those lines.

Mr. GAETZ. I just don't know, in sort of a normative geopolitical atmosphere whether or not arms control is all that likely on hypersonics when, as you say, we're behind, our adversaries are ahead. It seems though they might not have an incentive to engage in that arms control. Senator, you've got vast experience on these issues.

What does it mean that the United States of America is behind in hypersonics relative to our adversaries? How does that impact decision making?

Senator KYL. Thank you, Mr. Chairman, and Representative Gaetz. What is shows first of all, that it's kind of the microcosm for the macrocosm. We went to sleep for several years after the Cold War. The peace dividend is here, we don't need to worry about these things anymore. Well, not everybody went to sleep, and the Chinese and the Russians both have developed some very sophisticated systems that we did not work on until very recently.

So, Madelyn is right, we're behind both countries with regard to the hypersonic issue. We've had tests, and I won't get into the de-

tails, but bottom line is that we are behind where our two opponents are. And what this means is that they have some capabilities with which they can threaten us. It isn't necessarily the case that we have to catch up with their offensive capability.

Perhaps with defensive capabilities we can parry this thrust in effect, a good missile defense program, for example, might be at least part of a deterrent to deal with these weapons, at least until the United States is able to catch up offensively. But it makes our planning much more difficult.

Mr. GAETZ. Yeah, I appreciate that distinction between the offensive and defensive capabilities. But in a world in which China and Russia can hit a moving target with hypersonic delivery systems and we can't hit a moving target with hypersonic delivery systems, I'm worried that that impacts a lot of the strategic decision making that we've been discussing today.

And just to draw a finer point on it, Senator, when you say we are behind both countries in hypersonics, you are referring to China and Russia, right?

Senator KYL. Mr. Chairman, Representative Gaetz, that's correct.

Mr. GAETZ. It's remarkable, because you all have great experience, you look at these things, you have no ulterior motives. But when we bring DOD personnel, they're real sheepish on that. We can't get those clear admissions that we're behind to inform how we fund these things. Instead, they talk about the next upcoming test, but increasingly the Army has failed time and again to have these tests in a position to field our hypersonic systems. What level of trust do you have that the Army is going to get this right?

Senator KYL. Well, Mr. Chairman, Representative Gaetz, I'm not going to answer that question because I don't know. Our responsibility is to be straightforward with you all. You're the ones that appointed us, you're the ones that we answer to. It's very hard, I think a lot of times, for military people to explain everything and answer to questions from you all, you understand the reasons why.

One of the things that we noticed in this endeavor is there is a great attitude among the military, among the Defense Department generally in being able to succeed at a mission. It's a great thing about Americans, you give us a job to do, and we'll try to figure out a way to do it. The problem with that is that sometimes it can appear to be a little unrealistic.

And what we are concerned about is that in a multitude of areas here, the attitude of well, somehow or other we'll get there isn't necessarily the best information for the members of Congress to get.

Mr. GAETZ. I got you. I get that the scientific method includes testing hypotheses, and they don't always work out. But I just don't think we should view it as unrealistic that we should be able to have the basic capabilities on hypersonics that our adversaries do, particularly the ability to hit a moving target. Thank you.

Mr. Chairman, I yield back.

The CHAIRMAN. I thank the gentleman. I would like to make the announcement that you've heard the bells ringing, votes have been called. Our witnesses have another meeting at noon, so we will not be able to come back after votes, because votes won't end until

noon. So, we will do Mr. Horsford for questions, and then Mr. Bacon, and then we will adjourn.

So, Mr. Horsford, you're recognized.

Mr. HORSFORD. Thank you very much, Mr. Chairman, and to the ranking member for this important hearing. My district in Nevada includes the Nevada National Security Site, an enterprise of multi-mission, high hazard, experimentation facilities delivering technical and service solutions in support of our Nation's national security.

The world class work that's being done at NNSS [Nevada National Security Site] would not be possible without the hard-working individuals who come from all over the state of Nevada. The primary mission of NNSS is to help ensure the Nation's nuclear weapons stockpile remains safe, reliable, secure from our adversaries, and hosts all three NNSS—NNSA laboratories.

Chair Creedon, given your previous positions at NNSA, can you talk about the importance of the facilities across development, production, sustainment, and dismantlement in ensuring that the U.S. maintains a safe, secure, and reliable nuclear deterrent?

Ms. CREEDON. Yes, thank you very much for that question. The National Nuclear Security Site at Nevada, the Nevada Test Site, as we often refer to it historically, is really where so much of the experimental work at NNSA is done. So, one of the key new projects that's underway right now is called ECSE, it's the expanding capabilities for subcritical experiments.

And that doesn't really say much on its face, but what this does, is this is a whole laboratory underground with an accelerator to help the United States more fully understand the functioning of nuclear weapons so that we can not only maintain them, but that we understand them so that we can do more things in the future. Whether that's pit re-use, whether it's developing new pits based on the heritage of the tests at Nevada, it's the whole ramification.

So much work is done out there. There's also, and I mentioned earlier, some of the verification work that NNSA also does, there is a tremendous amount of that work out there. They just recently conducted an experiment with conventional high explosives to try and improve the capability for detection of others who might be trying to conduct nuclear tests underground.

There's a threshold beyond which it's quite difficult to detect. And it's also a host for a number of other government agencies who can bring their experiments to Nevada because of the size, the space, the complexity, and frankly the work force. But like all the sites, Nevada also has a challenge with respect to the work force. As you know, it's a very remote site, takes a long time to get out there. So, really focusing on the workforce out there is also hugely, hugely important.

Mr. HORSFORD. Yeah, I was just speaking to a group of workers over the weekend in fact, based on a contract issue that we're trying to get addressed, so I agree. What findings and recommendations specific to sites such as NNSS did the commission make to address any current shortfalls, and or improve management going forward?

Ms. CREEDON. So, what we looked at primarily was, as I mentioned, the state of the infrastructure. Nevada is huge, I mean the Nevada site is huge, I don't think it's often recognized how big it

really is. So, it has hundreds of miles of roads that need maintaining. In many respects it's a small state. And so, the infrastructure out there, both the experimental infrastructure, all of the work force, all of this needs to be updated, it needs to be maintained.

One of the things that we talk about with respect to the infrastructure is on the NNSA side, other than some of the scientific infrastructure, like some of the work that was done historically on the subcritical experiments, we didn't do much in terms for quite a while, and so now we're kind of playing catch up on this infrastructure.

And so, it's important that this get funded, and that it get funded consistently, as I mentioned without CRs, hopefully, and that there are adequate funds to do the planning, and people to implement it. But it's a big infrastructure problem. We talk about maintaining infrastructure in perpetuity so that we don't take these breaks in the past where we lost the ability to do things.

Mr. HORSFORD. Thank you for underscoring the points on infrastructure and sustainable funding. Thank you both for your service.

And I yield back my time.

The CHAIRMAN. The Chair now recognizes the gentleman from Nebraska, Mr. Bacon.

Mr. BACON. Thank you, Mr. Chair, and I appreciate you all being here today. I was stationed at Davis-Monthan in Tucson, so I had a great Senator in Senator Kyl. And I see General Chambers, I worked with him as a colonel at Ramstein, great fan. So, I appreciate your recommendations, I support modernizing the triad obviously. The one area that I'm concerned with is nuclear C3 [command, control, and communications].

And in particular, with the newer weapons that reduce our warning times with current technology to 15 minutes, future technology to no warning times, I think we need to go back to where we used to have 24/7 airborne backup capabilities for our command and control, the Looking Glass. We did it for 29 years, and we stopped in 1990. What's your alls' position on that?

I think we need to have an emergency 24/7 backup capability that can't be taken out by surprise, but I'd love to hear your thoughts.

Senator KYL. Thank you, Mr. Chairman, Representative Bacon. One of our recommendations concerns ways that we could potentially mitigate the risk of a deterrence gap and prepare for a future situation where we're in the process of transitioning from the legacy systems to the modernized systems. And that would include, for example, different policies with respect to the alert status of our bomber force.

There are specific recommendations in the report that go directly to that. There are some other related recommendations, but I think that's the specific one that you're talking about.

Mr. BACON. You're talking about the bombers, and I would agree with you. I think we need a command-and-control survivability analysis here. Because with minimal warning times, the White House, the Pentagon, STRATCOM [U.S. Strategic Command] could be hit, and then you're headless, and we've got to find ways to have survivability.

Senator KYL. Mr. Chairman, Representative bacon, you're exactly right. One of our commissioners, retired General John Hyten, was the STRATCOM Commander, and he was a great asset for the committee to understand exactly what you're talking about. He accompanied us when we went out to STRATCOM in Omaha, or Bellevue, I guess to be precise.

And a large part of our conversation there dealt with how we could make sure that our command and control kept up with the developments that are occurring, just as you point out. So, our recommendation for our nuclear enterprise is for the personnel, the enterprise, for the facilities, for the nuclear warheads themselves, and for the command and control. All of those are part of the existing program of record which must be completed.

Mr. BACON. They've tried to present to me to how they feel it's survivable, I have not been convinced. I used to fly on the Looking Glass too, when I was a one star. With 15-minute warning times going to zero in the future, I just think we've got to have some kind of—it's not for us, it's so the Russians and the Chinese know they can't catch us by surprise.

I'd just like to push this further, how do we assure that even with zero warning time we have command authorities not at the positions that are targeted? We've got to find a way to do that, and I'm going to be pushing this until we get resolution within DOD. And I just, I really appreciate, I support all your findings. I just think I'd like to add one, and build on it.

And with that, I yield back.

The CHAIRMAN. I thank the gentleman. I thank the witnesses, this is a great report, I would ask that a copy of the full report be put into the record, and I would let you know that I'm sure that given that we had to abbreviate this because of votes, there's going to be some questions for the record that I would ask that you respond to. And with that, thank you, and we are adjourned.

[Whereupon, at 10:49 a.m., the committee was adjourned.]

A P P E N D I X

NOVEMBER 15, 2023

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

NOVEMBER 15, 2023

Opening Statement (As Prepared)
Ranking Member Adam Smith
House Armed Services Committee Hearing:
"Congressional Commission on the Strategic Posture of the United States"
November 15, 2023

Thank you, Mr. Chairman.

I would like to welcome and thank both of our witnesses for appearing today. I also want to commend the Chair and Vice Chair of the commission on completing the difficult task they were charged with, particularly given today's environment. While I do not agree with every assertion made by the final report, and I am certain there are aspects that each commissioner would have written very differently, the outcome demonstrates that our national security can, and should be, an area where we can find some common ground.

As the Strategic Posture Commission highlighted in its report, the United States faces a fundamentally different strategic setting than it has experienced during the past 70 years. Increases in numbers of nuclear weapons pose significant threats, and potential conflict in new domains such as space and cyber significantly complicates the risks of rapid or inadvertent escalation in a crisis or conflict. Given this framework, I think it is prudent to begin thinking about and planning for how the United States will continue to lower the risk of nuclear use and the risk of miscalculation that could lead to nuclear war. I agree with the commissioners that strategic deterrence is a whole-of-government effort, and the Department of Defense alone is ill- suited with the task of maintaining strategic stability, regardless of the size, composition, or posture of our nuclear deterrent. Strategic deterrence demands focus in new areas, and in a cost- effective manner, to reduce the risk of rapid escalation in a crisis or conventional war, well below the threshold of considering nuclear weapons use.

One area where I question the findings of the commissioners is the assertion that we must perpetuate and remain beholden to an outdated architecture, specifically with regards to the land- based ICBMs, that was deployed in the 1960s. Given advancements in technology, I am not convinced that the only way to maintain our current deterrence posture is with a system that was designed over 60 years ago. In this context and the estimated $100 billion price tag for the Sentinel program, I would like the commissioners to address why eliminating this obsolete leg of the triad or at least transitioning to a mobile, agile, and survivable architecture as the Commission report recommends, is not a better approach to deterrence.

While the report does not mandate increases and is nuanced about the potential need to modify the size or composition of our nuclear forces, one thing is clear – our existing programs of record across both the Department of Defense and National Nuclear Security Administration are woefully underperforming. In some cases, they are years behind and billions of dollars above their original estimates. This is unacceptable, and at some point, hard decisions will need to be made on

how we can adapt to a new threat environment while clinging on to existing, failing programs.

I would like to also focus on the report's conclusions on the need for the U.S. to 1) maintain strong alliances and partnerships, 2) implement better planning tools across military, diplomatic, and economic avenues in the event of conflict, 3) leverage innovation across the industrial base to increase resiliency of our current architecture, namely in space and nuclear command and control, 4) increase conventional deterrence, 5) act as a responsible, transparent nuclear power, despite the erosion of existing arms control agreements, and 6) continue exploring future arms control agreements with a goal of ultimately reducing the role of nuclear weapons and the risk of nuclear war.

Lastly, where I am most disappointed with this report is the fact that there is no mention of what any of these recommendations will cost. With oversight of the entire defense budget, providing this committee a list of recommendations without any discussion of prioritization or budget implications is irresponsible. To that end, I hope our discussion today can help us understand specific areas we should be focusing on in the short-term, particularly with regards to conventional capabilities.

I look forward to the witnesses' testimony, and hope today's hearing can help give a bit more clarity on where we go from here, with the ultimate goal of lowering the risk of nuclear war today, and into the future.

Written Testimony for the House Armed Services Committee

"Findings of the Congressional Commission on the Strategic Posture of the United States"

Honorable Madelyn R. Creedon

Chair, Congressional Commission on the Strategic Posture of the United States

Honorable Jon L. Kyl

Vice Chair, Congressional Commission on the Strategic Posture of the United States

November 15, 2023

Preface to the Final Report

The militarily troubling and increasingly aggressive behaviors of Russia and China over the past decade led Congress to direct a review of the strategic posture of the United States, including nuclear weapons policy, strategy, and force structure.[1] We have the privilege to serve as the chair and vice chair of this second Strategic Posture Commission (SPC).

Much has happened since the first SPC released its report in 2009.[2] China's rapid military build-up, including the unprecedented growth of its nuclear forces, Russia's diversification and expansion of its theater-based nuclear systems, the invasion of Ukraine in 2014 and subsequent full-scale invasion in February 2022, have all fundamentally altered the geopolitical landscape. As a result of China's and Russia's growing competition with the United States and its Allies and partners, and the increasing risk of military conflict with one or both, as well as concerns about whether the United States would be prepared to deter two nuclear peers, Congress determined it was time for a new look at U.S. strategic policy, strategy, and force structure.

The first SPC had a charge like ours: "to conduct a review of the strategic posture of the United States and to make a recommendation on how to move forward."[3] The vision of a world without nuclear weapons, aspirational even in 2009, is more improbable now than ever. The new global environment is fundamentally different than anything experienced in the past, even in the darkest days of the Cold War. Today the United States is on the cusp of having not one, but two nuclear peer adversaries, each with ambitions to change the international status quo, by force, if necessary: a situation which the United States did not anticipate and for which it is not prepared. While the risk of a major nuclear conflict remains low, the risk of military conflict with either or both Russia and China, while not inevitable, has grown, and with it the risk of nuclear use, possibly against the U.S. homeland.

We started our work with extensive intelligence briefings to understand this new, rapidly changing security environment. These briefings underpin our conclusion that as a nation we need to urgently prepare for the new reality, and that measures need to be taken now to deal with these new threats. We believe that prompt actions are needed to provide future decision-makers viable options to credibly deter conflict. Being unprepared for the reality of two nuclear peers, who are dedicated to and focused on undermining the post-Cold War international order that has served the United States and its Allies and partners so well, is, in our view, not an option.

We had extensive discussions and briefings on the problems we face as a nation, including workforce shortages, supply chain limitations, and inadequate physical, scientific, technical, and experimental infrastructure at the Department of Defense (DOD) and Department of Energy/National Nuclear Security Administration (DOE/NNSA). These shortcomings resulted from years of inattention and if not addressed promptly, will continue to limit the U.S. ability to prepare and respond to the new challenges.

As we discussed this new normal, we also concluded that the United States does not truly have, but must commit to, a "whole-of-government" approach to be more efficient and effective.

Keeping up with technology is also a challenge. Whereas in the past, when U.S. government research was uniformly on the cutting edge, that role has shifted to the private sector in many areas. As a result, the DOD and DOE/NNSA will have to change traditional procurement practices to work effectively with the private sector to rapidly develop and deploy new cutting-edge technology.

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[1] Congress established the parameters of the review and a Strategic Posture Commission to carry it out in the National Defense Authorization Act for Fiscal Year 2022, Pub. L. 117-81, 135 Stat. 2126, 117th Cong.
[2] William J. Perry and James R. Schlesinger, America's Strategic Posture: The Final Report of Congressional Commission on the Strategic Posture of the United States, (United States Institute of Peace, 2009).
[3] Ibid, Chairman's Preface.

Allies and partners are important as together we are stronger. Greater cooperation, coordination and integration with our Allies and partners is essential to deter conflict and prosper economically. National leaders must communicate to U.S citizens the benefits and importance of U.S. global leadership, Allies and partners and extended deterrence, if they are to gain the support of the American people for the associated policy and costs.

Our review sought to address and respond to this new, more dangerous, and more competitive environment, while looking for ways to improve strategic stability and reduce the risk of conflict. We know that this will be difficult on many levels, but we believe that our recommendations can help shape needed future strategy and posture decisions.

For the most part the Commission deliberately avoided making specific force structure recommendations; instead, we identified capabilities beyond the existing program of record (POR) that will be needed. We believe it is appropriate to leave specific material solution decisions to the Executive Branch and Congress. We were clear, however, that the nuclear force modernization POR is absolutely essential, although not sufficient to meet the new threats posed by Russia and China, and that the elements of the POR should be completed on time, expedited wherever possible, and expanded as needed.

We also found that adopting new technologies faster, and working with smaller innovative companies will be necessary to support a modern, flexible, force structure and infrastructure in the future.

While we did not conduct a cost analysis of our recommendations, it is obvious they will cost money. We do recognize budget realities, but we also believe the nation must make these new investments and U.S. leaders must communicate to U.S. citizens both the need and urgency to rebuild the nuclear infrastructure and modernize the nuclear forces. These investments in the nuclear enterprise are a relatively small portion of the overall defense budget but provide the backbone and foundation of deterrence and are the nation's highest defense priority. The investments the Commission recommends in both nuclear and conventional capabilities will provide a safe, secure, reliable, effective, and credible deterrent, which is essential to reduce the risk of conflict, most importantly nuclear conflict.

From the outset the Commissioners understood that our most valuable contribution to U.S. national security would be a consensus report. There were certainly differences of opinion and a multitude of views expressed amongst our members during our many robust debates and discussions. No doubt some commissioners might have stated some things differently. For example, a number of commissioners believe it is inevitable that the size of the U.S. nuclear stockpile and the number of delivery systems should increase. We all agreed, however, on the findings and recommendations in this report and the need for actions now to better position the United States for the future and ensure a safe, secure, reliable, and credible deterrent.

We believe that sustained bipartisan consensus is possible and necessary to secure a strong future and credible deterrent for the United States. Moreover, we hope this report illustrates to policy- and decision-makers that even with different opinions, people of good faith can work together for the common good on fundamentally important matters.

This report would not have been possible without the excellent work of the Institute for Defense Analyses (IDA) leadership and staff. We extend a sincere thank you to our Executive Director, Maj. Gen. William Chambers (USAF retired) and the IDA staff.

Executive Summary of the Report

The United States faces a strategic challenge requiring urgent action. Given current threat trajectories, our nation will soon encounter a fundamentally different global setting than it has ever experienced: we will face a world where two nations possess nuclear arsenals on par with our own. In addition, the risk of conflict with these two nuclear peers is increasing. It is an existential challenge for which the United States is ill-prepared, unless its leaders make decisions now to adjust the U.S. strategic posture.

The Congressional Commission on the Strategic Posture of the United States was established by the Fiscal Year (FY) 2022 National Defense Authorization Act (NDAA), and concludes that America's defense strategy and strategic posture must change in order to properly defend its vital interests and improve strategic stability with China and Russia. Decisions need to be made now in order for the nation to be prepared to address the threats from these two nuclear-armed adversaries arising during the 2027-2035 timeframe. Moreover, these threats are such that the United States and its Allies and partners must be ready to deter and defeat both adversaries simultaneously.

We arrive at these conclusions following a comprehensive year-long review of the threats America faces and its strategy and planned capabilities to address those threats. The evidence demonstrates that the U.S.-led international order and the values it upholds are at risk from the Chinese and Russian authoritarian regimes. The risk of military conflict with those major powers has grown and carries the potential for nuclear war. Therefore, the Commission reached the unanimous, non-partisan conclusion that today's strategic outlook requires an urgent national focus and a series of concerted actions not currently planned. In sum, we find that the United States lacks a comprehensive strategy to address the looming two-nuclear-peer threat environment and lacks the force structure such a strategy will require.

In reaching that overall conclusion, we make clear that the fundamentals of America's deterrence strategy remain sound, but the application of that strategy must change to address the 2027-2035 threat environment. Those changes drive necessary adjustments to the posture of U.S. nuclear capabilities – in size and/or composition. A full spectrum of non-nuclear capabilities is also essential to the nation's strategic posture. Such adjustments, in turn, drive the need to strengthen and expand the capacity of the infrastructure required to sustain and enhance U.S. strategic capabilities. In addition, Allies and partners are central to our findings regarding strategy and posture. We also emphasize the need for robust risk reduction efforts as fundamental to the U.S. approach in the new threat environment.

Adhering to the stipulations of our mandate, the report that follows delineates 131 findings and makes 81 recommendations. Those findings and recommendations are found at the beginning and end, respectively, of each chapter that follows; a complete list is also included following the report's conclusion. Our most important recommendations are summarized here:

STRATEGY

- To achieve the most effective strategy for stability in light of the 2027-2035 threat environment, the Commission identifies three necessary changes:
  - The United States must develop and effectively implement a truly integrated, whole-of-government strategy to address the 2027-2035 threat environment.
  - The objectives of U.S. strategy must include effective deterrence and defeat of simultaneous Russian and Chinese aggression in Europe and Asia using conventional forces. If the United States and its Allies and partners do not field sufficient conventional forces to achieve this objective, U.S. strategy would need to be altered to increase reliance on nuclear weapons to deter or counter opportunistic or collaborative aggression in the other theater.

- The size and composition of the nuclear force must account for the possibility of combined aggression from Russia and China. U.S. strategy should no longer treat China's nuclear forces as a "lesser included" threat. The United States needs a nuclear posture capable of simultaneously deterring both countries.

- The Commission recommends the United States maintain a nuclear strategy consistent with the Law of Armed Conflict (LOAC), based on six fundamental tenets—assured second strike, flexible response, tailored deterrence, extended deterrence and assurance, calculated ambiguity in declaratory policy, hedge against risk—and apply these tenets to address the 2027-2035 threat.

STRATEGIC POSTURE

In the context of a strategic posture deploying both conventional and nuclear capability, the Commission believes the traditional role of nuclear weapons in U.S. defense strategy remains valid and of continuing importance: deterrence of adversaries; assurance of Allies; achieving U.S. objectives should deterrence fail; and hedging against adverse events.

- The Commission recommends fully and urgently executing the U.S. nuclear modernization Program of Record (POR), which includes replacement of all U.S. nuclear delivery systems, modernization of their warheads, comprehensive modernization of U.S. nuclear command, control, and communications (NC3), and recapitalizing the nuclear enterprise infrastructure at the DOD and DOE/NNSA.
- The current modernization program should be supplemented to ensure U.S. nuclear strategy remains effective in a two-nuclear-peer environment.
- Comprehensive risk-mitigating actions across U.S. nuclear forces must be executed to ensure that delays in modernization programs or early age-out of currently deployed systems do not result in militarily significant shortfalls in deployed nuclear capability.
- The U.S. strategic nuclear force posture should be modified to:
  - Address the larger number of targets due to the growing Chinese nuclear threat.
  - Address the possibility that China will field large-scale, counterforce-capable missile forces that pose a threat to U.S. strategic nuclear forces on par with the threat Russia poses to those forces today.
  - Assure the United States continues to avoid reliance on executing Intercontinental Ballistic Missile (ICBM) launch under attack to retain an effective deterrent.
  - Account for advances in Russian and Chinese integrated air and missile defenses (IAMD).

- The U.S. theater nuclear force posture should be urgently modified to:
  - Provide the President a range of militarily effective nuclear response options to deter or counter Russian or Chinese limited nuclear use in theater.
  - Address the need for U.S. theater nuclear forces deployed or based in the Asia-Pacific theater.
  - Compensate for any shortfall in U.S. and allied non-nuclear capabilities in a sequential or simultaneous two-theater conflict against Russia and China.
  - Address advances in Russian and Chinese IAMD.

NUCLEAR SECURITY ENTERPRISE INFRASTRUCTURE AND ORGANIZATION

- The Commission recommends the DOD and DOE/NNSA strategic infrastructure be expanded to have sufficient capacity to:

  - Meet the capability and schedule requirements of the current nuclear modernization POR and the requirements of the force posture modifications recommended by the Commission in time to address the two-peer threat.
  - Provide an effective hedge against four forms of risk: technical failure of a warhead or delivery system, programmatic delays, operational loss of delivery systems, and further deterioration of the geopolitical environment.
  - Flex to respond to emerging requirements in a timely fashion.

- To support the proposed strategy, the Commission recommends Congress fund an overhaul and expansion of the capacity of the U.S. nuclear weapons defense industrial base and the DOE/NNSA nuclear security enterprise, including weapons science, design, and production infrastructure. Specifically:
  - Congress should fund the full range of NNSA's recapitalization efforts, such as pit production and all operations related to critical materials.
  - Congress should forge and sustain bipartisan consensus and year-to-year funding stability to enable the defense industry to respond to innovative DOD contracting approaches and invest with more certainty.
  - Congress should enact annual DOD and DOE authorization and appropriation bills before the beginning of each fiscal year.
  - Congress should place the purview of all "050" programs (President's Budget line item for "national security") that are in NNSA under Defense appropriations subcommittees (House Appropriations Committee-Defense (HAC-D), Senate Appropriations Committee-Defense (SAC-D).
  - Cabinet Secretaries, working with states and union leaders, should establish and increase the technical education and vocational training programs required to create the nation's necessary skilled-trades workforce for the nuclear enterprise.
- The Commission recommends a number of specific actions to expand the capacity and effectiveness of the nation's infrastructure and supply chain for its strategic capabilities.

NON-NUCLEAR CAPABILITIES

The Commission recommends:

- The United States urgently deploy a more resilient space architecture and adopt a strategy that includes both offensive and defensive elements to ensure U.S. access to and operations in space.
- The United States and its Allies take steps to ensure they are at the cutting edge of emerging technologies – such as big data analytics, quantum computing, and artificial intelligence (AI) – to avoid strategic surprise and potentially enhance the U.S. strategic posture.
- The United States prioritize funding and accelerate long-range non-nuclear precision strike programs to meet the operational need and in greater quantities than currently planned.
- The United States develop and field homeland IAMD that can deter and defeat coercive attacks by Russia and China, and determine the capabilities needed to stay ahead of the North Korean threat.[4]
- The Secretary of Defense direct research, development, test and evaluation into advanced IAMD capabilities leveraging all domains, including land, sea, air, and space. These activities should focus on sensor architectures, integrated command and control, interceptors, cruise and hypersonic missile defenses, and area or point defenses. The DOD should urgently pursue deployment of any capabilities that prove feasible.
- The Secretary of Defense and the Military Departments transfer operations and sustainment responsibility for missile defense to the appropriate Military Departments by 1 October 2024.

[4] A "coercive" attack consists of limited conventional or nuclear strikes intended to convince U.S. leadership that the costs of intervening or persevering in a conflict involving the attacker are too high.

This will allow the Missile Defense Agency (MDA) to focus on research, development, prototyping and testing.

ALLIES AND PARTNERS

The Commission believes it is in the U.S. national interest to maintain, strengthen, and when appropriate, expand its network of alliances and partnerships. These relationships strengthen American security by deterring aggression regionally, before it can reach the U.S. homeland, while also enabling U.S. economic prosperity through access to international markets. Withdrawing from U.S. alliances and partnerships would directly benefit adversaries, invite aggression that the United States might later have to reverse, and ultimately decrease American, allied, and partner security and economic prosperity. Further, the Commission believes that our defense and the defense of the current international order is strengthened when Allies can directly contribute to the broader strategic posture, and the United States should seek to incorporate those contributions as much as possible.

- The Executive branch should recognize that any major change to U.S. strategic posture, policies, or capabilities will have great effect on Allies' perceptions and their deterrence and assurance requirements. As a result, any changes should be predicated on meaningful consultations.

RISK REDUCTION

The Commission believes it is of paramount importance for the United States to work to reduce strategic risks. This involves activities and programs across the U.S. government, including in nonproliferation and arms control, as well as maintaining strong, viable, and resilient military forces.

- The Commission recommends that a strategy to address the two-nuclear-peer threat environment be a prerequisite for developing U.S. nuclear arms control limits for the 2027-2035 timeframe. The Commission recommends that once a strategy and its related force requirements are established, the U.S. government determine whether and how nuclear arms control limits continue to enhance U.S. security.
- The Commission recommends that the United States continue to explore nuclear arms control opportunities and conduct research into potential verification technologies in order to support or enable future negotiations in the U.S. national interest that seek to limit all nuclear weapon types, should the geopolitical environment change.
- Where formal nuclear arms control agreements are not possible, the Commission recommends pursuing nuclear risk reduction measures to increase predictability and reduce uncertainty and the chances for misperception and miscalculation.

The 2009 Congressional Commission on the Strategic Posture of the United States reported that the United States was at "a moment of opportunity, . . .but also a moment of urgency" – because the security environment had improved and the threat of nuclear proliferation was the principal concern. Since 2009, the security environment has dramatically worsened and new existential threats have emerged. This Commission concludes that the United States now faces a high-stakes challenge that requires urgent action. Nevertheless, the Commission has not seen the U.S. government demonstrate the urgency and creativity required to meet the challenge. Nothing other than synchronized steps taken by the Executive and Legislative Branches will craft the strategy and build the posture the nation requires.

The challenges are unmistakable; the problems are urgent; the steps are needed now.

Compilation of Findings and Recommendations from the Final Report

THE STAKES

Findings

Today, the U.S.-led international order is under threat from the Chinese and Russian authoritarian regimes, which seek to disrupt and displace this order and create a new version conducive to their authoritarian regimes, premised on values antithetical to those held by the United States and like-minded Allies and partners worldwide.

Though the U.S.-led order is threatened, it currently holds. The Commission concludes, however, that unless the United States adjusts its strategic posture, U.S. vital interests and international stability are at risk during the 2027-2035 period.

U.S. Allies and partners give the United States a clear strategic advantage. If the United States were to adopt a defense strategy and associated strategic posture no longer based on existing alliance systems in Asia and Europe, U.S. vital interests would be at risk, U.S. global influence diminished, and Americans' liberties threatened.

A central thrust of China's and Russia's adversarial approach toward the United States is their building of military capabilities, including major expansion and modernization of nuclear capabilities, which could lead to a situation where both powers pose an existential threat to the United States.

There is a growing risk of confrontation with China, Russia, or both. This includes the risk of military conflict.

Unlike World Wars I and II, a major power conflict in the 21st century has the potential to escalate into a large-scale nuclear war.

While it is challenging to maintain a strategic posture sufficient to prevent major power war, it would be far more expensive to fight such a war.

The urgent imperative to tackle the strategic challenge the United States faces must be consistently conveyed in a bipartisan manner by national leaders and broadly understood by the American people.

Recommendations

The Commission recommends America's elected leaders communicate strategic realities— U.S. vital interests, threats to those vital interests, and necessary changes to the U.S. strategic posture—to the American people clearly, forthrightly, and regularly:

- This entails communicating that U.S. national security requires the United States to remain engaged in international affairs to maintain and further its national interests, prevent armed aggression and escalation if possible, and prevail in armed conflict if necessary.
- It also requires communicating that U.S. and allied commitments to come to the defense of one another protect and advance U.S. vital interests, including our shared democratic values, freedoms, and prosperity. The U.S. alliance security commitments, therefore, are acts of friendship that also advance vital economic and security interests of all U.S. citizens. More fundamentally, Allies and partners make the United States stronger and enable it to better pursue and protect U.S. national and shared interests.

THE THREAT THROUGH 2027-2035

Findings

The United States will face two nuclear peer adversaries for the first time. The Commission concludes that China's rapid expansion of its nuclear forces and Russia's increasing reliance on nuclear weapons and potentially expanded nuclear arsenal are an unprecedented and growing threat to U.S. national security and potentially the U.S. homeland. In addition, unlike previous conflicts in the 20th century, a future potential conflict with China or Russia would likely involve new kinetic and non-kinetic attacks on the U.S. homeland and assets in space and cyber domains – further underscoring the importance of deterring and defeating such attacks.

The new partnership between Russian and Chinese leaders poses qualitatively new threats of potential opportunistic aggression and/or the risk of future cooperative two-theater aggression. Neither the 2018 nor the 2022 National Defense Strategy (NDS) adequately address this rapidly emerging threat. As noted by the 2018 Commission on the NDS, regarding the 2018 NDS: "The Department has largely abandoned the longstanding 'two war' construct for a 'one major war' sizing and shaping construct. In the event of large-scale conflict with China or Russia, the United States may not have sufficient remaining resources to deter other adversaries in one—let alone two—other theaters by denying them the ability to accomplish their objectives without relying on nuclear weapons."

The 2022 NDS also adopts a "one major war" sizing construct, while both the 2022 NDS and the 2022 Nuclear Posture Review (NPR) hint at increased reliance on U.S. nuclear forces to deter opportunistic aggression. But neither addresses the nature of the U.S. conventional force, including space and non-kinetic capabilities, or nuclear force that will be required to do so when facing two peers. As noted in the 2022 NPR: "In a potential conflict with a competitor, the United States would need to be able to deter opportunistic aggression by another competitor. We will rely in part on nuclear weapons to help mitigate this risk, recognizing that a near-simultaneous conflict with two nuclear-armed states would constitute an extreme circumstance."

Due to China's nuclear build-up, the United States will no longer be able to treat the Chinese nuclear threat as a "lesser included case" of the Russian nuclear threat. As a result, the United States must re-evaluate the size and composition of the U.S. nuclear force that would be adequate to fulfill longstanding roles of that force. These roles include deterrence, assurance, achieving objectives should deterrence fail, and hedging against adverse events.

U.S. defense strategy to address the two-nuclear-peer threat requires a U.S. nuclear force that is either larger in size, different in composition, or both; therefore, decisions must be made now to meet evolving deterrence requirements.

- The current and planned capacity of the U.S. nuclear weapons enterprise, in both DOD and DOE/NNSA, limits the nation's ability to meet and build on the existing POR in order to address the threat.

The Commission concludes the U.S. and allied conventional military advantages in Asia are decreasing at the same time the potential for two simultaneous theater conflicts is increasing.

- Moreover, the U.S. conventional forces needed to fight a theater conflict in Europe differ from those required for Asia. The currently planned force is not structured to be able to fully reinforce both theaters simultaneously – especially given the growing adversary non-nuclear capability to hinder U.S. ability to flow additional forces to Asia or Europe. This shortfall, combined with increases in China's nuclear capabilities, has the potential to undermine deterrence, especially deterrence of opportunistic aggression.

The Commission concludes that dismissing the possibility of opportunistic or simultaneous two-peer aggression because it may seem improbable, and not addressing it in U.S. strategy and strategic posture, could have the perverse effect of making such aggression more likely.

- China, Russia, or both simultaneously, may believe that the United States and its Allies are unlikely to oppose their regional aggression with sufficient forces to guarantee victory, since doing so may leave the United States and its Allies vulnerable in another theater. These states may gamble that their perceived greater stake in a conflict's outcome, combined with perceived U.S. limitations, may offer a unique opportunity for their successful aggression.
- The speed and scale of success of U.S. forces in meeting that aggression in one theater may greatly influence the chances of conflict, or success in conflict, in the other theater.

China is pursuing a nuclear force build-up on a scale and pace unseen since the U.S.–Soviet nuclear arms race that ended in the late 1980s.

The Commission further concludes that at China's current pace, it will reach rough quantitative parity with the United States in deployed nuclear warheads by the mid-2030s.

- As it acquires sufficient fissile material, China will retain the capacity to continue growing its nuclear forces quickly past that point.

China's capacity for rapid change, and opacity concerning its intentions, presents great challenges for U.S. defense and nuclear strategy.

China appears to have decided to change the role of nuclear weapons in its national security strategy (e.g., adopting an expanded theater nuclear war-fighting role), in anticipation of a conflict over Taiwan and perhaps in pursuit of its broader national objectives.

Neither a new Chinese strategy nor the far larger and more diverse Chinese nuclear force required to implement it were envisioned when the current U.S. nuclear modernization program was developed.

The Commission also assesses that the rapid pace of potential change in Chinese strategy and capabilities will place additional demands on the ability of the United States and its Allies to adapt their own strategies and capabilities.

The Commission has concluded that China now has, for the first time, a nascent triad of strategic nuclear delivery systems, and potentially a launch-on-warning posture. China also is developing and testing potentially destabilizing, new intercontinental range systems that include hypersonic as well as fractional or multiple orbital bombardment systems (FOBS or MOBS) that could potentially threaten an unwarned preemptive attack on the United States.

China will also for the first time have survivable (mobile) theater nuclear forces capable of conducting low-yield precision strikes on U.S. and allied forces and infrastructure across East Asia, in contrast to its historic practice of fielding only larger yield weapons. Theater-range low-yield weapons may reduce China's threshold for using nuclear weapons.
The Commission finds that China is rapidly fielding new non-nuclear capabilities in space and cyberspace and electronic warfare (EW) capabilities that create both strategic and theater effects. These capabilities, in addition to China's conventional forces, can deny, disrupt, or diminish U.S. conventional forces' ability to project power effectively, and can threaten both U.S. NC3 and the critical national infrastructure that supports it.

The Commission concludes that China continues to engage in biological and chemical activities with dual-use applications, which raises concerns regarding its compliance with the Biological and Chemical Weapons Conventions (BWC and CWC).

The Commission concludes that China is rapidly expanding and modernizing its conventional forces–to include ballistic missile systems–posing an increasing threat to U.S. forces and Allies in Asia. By the 2030s China's conventional military build-up could turn the conventional military balance in Asia against the U.S. and its Allies.

- This potential conventional imbalance, particularly in long-range and intermediate-range systems, increases the risk of deterrence failure should China contemplate aggression, especially if there were to be a theater conflict already underway between Russia and North Atlantic Treaty Organization (NATO).
- China is also strengthening and expanding its air and missile defense network, primarily aimed at defeating the full range of U.S. advanced strike capabilities.

The Commission finds that even before any potential change in the conventional military balance, China may perceive that the cost of inaction against Taiwan is higher than the cost of conflict with the United States over Taiwan – even at the risk of nuclear war.

The Commission concludes that Russia today has the largest nuclear force of any state. This is likely to remain true through 2035.

Russia is projected to continue to expand and enhance its nuclear forces, with most of the growth concentrated in theater nuclear forces, thus increasing its decided numerical advantage over U.S. and allied nuclear forces.

Russian strategy and doctrine as written envisions limited first use of theater nuclear weapons to, inter alia, coerce war termination on terms acceptable to Russia, and larger scale use of theater nuclear forces to defeat NATO conventional forces if Russia is decisively losing a war with NATO. Russian strategy and doctrine rely on strategic nuclear forces to deter a large-scale U.S. nuclear response against the Russian homeland while Russia can escalate to limited nuclear war in theater if it chooses.

The Commission concludes that Russia's active nuclear warhead and missile production lines provide the capability, should Russia decide to discard the limits of New START (Strategic Arms Reduction Treaty), to expand its strategic nuclear forces.

- Russia's current modernization program added substantial warhead upload capacity to its ICBMs and Submarine Launched Ballistic Missiles (SLBMs).
- Russia's modernized nuclear warhead design and production infrastructure has significant surplus capacity to implement a decision to upload.
- Russia has nearly completed a multi-year modernization program of its strategic nuclear forces, with notable improvements to its triad of forces, including the new Sarmat heavy ICBM and cruise-missile equipped Severodvinsk class submarines.
- Russia's future long-range nuclear forces include new forms of nuclear delivery systems (e.g., Avangard, Poseidon, nuclear-powered Skyfall Ground Launched Cruise Missile (GLCM), Kinzhal air-launched ballistic missile).

The Commission concludes that Russia is continuing to expand its space, cyber, and electronic warfare capabilities in an effort to deny U.S. and NATO forces critical enabling capabilities, and to derive coercive political leverage from threats to critical infrastructure.

The Commission concludes that Russia continues to pursue biological and chemical weapons capabilities in violation of the BWC and CWC.

The Commission has concluded that Russian conventional forces, while inferior to fully mobilized NATO forces, will continue to have a space/time advantage against NATO states on Russia's periphery, potentially enabling them to occupy such states' territory in a fait accompli before NATO forces can fully mobilize in their defense, thus presenting an existential threat to territorial sovereignty of Allies and partners.

Russian modernization and expansion of its air and missile defense capabilities beyond the Moscow region will pose a growing threat not only to the efficacy of U.S. nuclear forces but to conventional forces as well.

The Commission has found that Russia's use of large-scale conventional military force against Ukraine demonstrates a propensity to take risk and tolerate significant loss. The outcome of the war in Ukraine could influence future calculations – and indeed miscalculations – about the risks and benefits of aggression.

The Commission concludes that North Korea continues to expand and diversify its nuclear forces, increasing the threat to U.S. Allies and forces in theater, and posing a greater threat to the U.S. and its Allies.

North Korea is on pace to deploy nuclear-armed intercontinental range missiles in sufficient numbers that could potentially challenge U.S. homeland ground-based ballistic missile defenses.

The Commission concludes that North Korea's chemical and biological weapons programs continue to be of great concern.

The Commission also found that North Korea's cyber forces have matured and are fully capable of achieving a range of strategic objectives against diverse targets, including a wider target set in the United States.

The Commission concludes the Iranian regime will maintain a nuclear program as part of its strategic goals for enhancing security, prestige, and regional influence. This includes pursuit of nuclear energy and the capability to build missile-deliverable nuclear weapons.

If Iran decides to do so, it could field advanced longer-range missile systems in the 2027-2035 timeframe. Iran will also pose a credible theater missile threat as a key non-nuclear capability.

Recommendations

The Commission recommends the following:

- The Director of National Intelligence (DNI) should immediately direct increased collection, processing, exploitation, and analysis on Chinese nuclear strategy, planning, and employment doctrine. It is essential that the United States better understand, inter alia, whether and how China's thinking about the role of nuclear weapons is changing, where the Chinese are investing time and effort in military equipment and strategy development, and what goals CCP leadership wants to achieve with its newly expanded nuclear arsenal.
- The DNI should immediately direct development of dynamic assessments of the decision calculus of all nuclear-armed adversaries regarding the use of nuclear weapons for coercion or in conflict. The Intelligence Community must ensure these assessments identify specific adversary perceptions of the potential benefits and costs of employing nuclear weapons in conflict, the potential benefits and costs of restraint from doing so, and possibilities for misunderstanding and

miscalculation that could facilitate escalation of crises. Such assessments are critical prerequisites for the development of effective deterrence strategies and campaigns, and the plans that flow from them.

- The DNI should immediately direct an analysis of other potential adversaries that may develop strategic military capabilities during the 2027-2035 timeframe that could threaten U.S. and allied interests.
- The Secretary of Defense should immediately direct an analysis of the policy and posture effects of the threats posed by emerging and disruptive technologies, to include AI, quantum, and genetically engineered or other novel biological weapons on the future military balance and strategic stability. Based on the results of that analysis, develop a strategy and identify associated strategic posture changes, including defenses, sufficient to address these potential threats.

STRATEGY

Findings

The six core tenets of U.S. nuclear strategy—assured second strike, flexible response, tailored deterrence, extended deterrence and assurance, calculated ambiguity, and hedge against risk— remain sound and continue to provide an effective foundation for deterrence and defense.

Adversary kinetic and non-kinetic capabilities are a growing threat to the U.S. homeland.

Space, cyber, and other non-kinetic capabilities are not adequately reflected in a coherent U.S. strategy to address the 2027-2035 threat.

The risk of failing to deter potential opportunistic or collaborative two-theater aggression in the 2027-2035 timeframe will not be mitigated unless the United States modifies its defense strategy and the strategic posture that enables it.

Recommendations

U.S. nuclear strategy is the foundational element of its broader strategy for addressing the two-nuclear-peer threat environment. The Commission recommends the United States maintain a nuclear strategy based on six fundamental tenets:

- Assured second strike;
- Flexible response to achieve national objectives;
- Tailored deterrence;
- Extended deterrence and assurance;
- Calculated ambiguity in declaratory policy; and
- Hedge against risk.

These foundational strategy tenets should be applied to address the 2027-2035 threat in the following ways:

- Deter large-scale strategic attack on the United States and its Allies and partners through maintaining an assured second-strike capability sufficient to impose unacceptable costs as an adversary or adversaries perceive it under any conditions.
- Continue the practice and policy of not directly targeting civilian populations, and adhere to the LOAC in nuclear planning and operations.
- Tailor U.S. deterrence strategy and practice to decisively influence the unique decision calculus of each nuclear-armed adversary. As a general rule, the most effective deterrent is to hold at risk

what adversaries value most. As long as the Chinese and Russian regimes maintain their current autocratic structure and dangerous policies, this means holding at risk key elements of their leadership, the security structure maintaining the leadership in power, their nuclear and conventional forces, and their war supporting industry.

- Deter limited strategic attacks, including limited nuclear escalation, through a flexible response strategy enabled by U.S. and allied nuclear and conventional forces and partner conventional forces that are capable of:
  - Continuing to operate effectively to achieve U.S. and allied and partner objectives in a limited nuclear use environment; and
  - Providing a credible range of resilient response options to restore nuclear deterrence and promote conflict termination by convincing an adversary's leadership it has seriously miscalculated, that further use of nuclear weapons will not achieve its objectives, and that it will incur costs that far exceed any benefits it can achieve should it escalate further.
- Enhance deterrence of armed aggression against U.S. Allies and partners and reduce the risk of escalation in a conflict if deterrence fails. U.S. extended nuclear deterrence requires that U.S. flexible response options be credible, especially in a simultaneous conflict with two peer nuclear adversaries.
- Maintain a declaratory policy of calculated ambiguity about the conditions in which the United States may employ nuclear weapons to preserve options for the President under all circumstances, complicate adversary decision-making regarding going to war with the United States, and deter an adversary from escalating a conflict with the United States.
- Develop the means to hedge against geopolitical, technical, operational, and programmatic risk that ensures such risks cannot result in U.S. deployed nuclear forces being insufficient to support U.S. nuclear strategy.

The Commission believes that U.S. national security strategy should strengthen deterrence by incorporating resilient offensive and defensive capabilities necessary to deny adversaries' theories of military victory. This recommendation is driven by Russian and Chinese advances in kinetic and non-kinetic offensive weapons, including dual-capable strike systems that can range the U.S. homeland. These weapons pose threats to the U.S. ability to project power in support of its Allies and partners in Europe and Asia, and to elements of the nuclear command, control, and communications system, strategic nuclear forces, and military space capabilities. The Commission recommends significant attention to these new kinetic and non-kinetic threats, including changes to U.S. IAMD in order to address the 2027-2035 security environment. U.S. strategy should increase the role of homeland IAMD capabilities capable of deterring and defending against coercive attacks by Russia and China. The Commission believes that protecting against such kinetic and non-kinetic attacks will complicate adversary attack planning and force them to contemplate larger-scale attacks to achieve similar objectives, thus strengthening deterrence.

The Commission believes U.S. military strategy requires active and passive defense of U.S. and allied and partner assets, as well as credible threats of punishment, to enable the military operations necessary to deter and counter Russian and/or Chinese theater aggression. For example, because Russian and Chinese advances in offensive counterspace capabilities pose an increasingly serious threat to U.S. and allied and partner space capabilities that enable U.S. power projection, missile attack warning, and nuclear command and control, the United States should urgently deploy a more resilient space architecture and adopt a strategy that includes both offensive and defensive elements to ensure U.S. access to and operations in space.

To achieve the most effective strategy for stability in light of the 2027-2035 threat environment, the Commission recommends three necessary changes:

1. The United States must develop and effectively implement a truly integrated, whole-of-government strategy to address the 2027-2035 threat environment, and must be able to bring all elements of American power to bear against these impending threats. The Department of Defense's Integrated Deterrence concept is a good start in this direction, but the Commission sees little evidence of its implementation across the interagency.
2. The objectives of U.S. strategy must include effective deterrence and defeat of simultaneous Russian and Chinese aggression in Europe and Asia using conventional forces. If the United States and its Allies and partners do not field sufficient conventional forces to achieve this objective, U.S. strategy would need to be altered to increase reliance on nuclear weapons to deter or counter opportunistic or collaborative aggression in the other theater.
3. This strategy must be reflected in U.S. nuclear force structure. U.S. strategy should no longer treat China's nuclear forces as a "lesser included" threat. Therefore, nuclear force structure constructs can no longer assume that the nuclear forces necessary to deter or counter the Russian nuclear threat will be sufficient to deter or counter the Chinese nuclear threat simultaneously. Nuclear force sizing and composition must account for the possibility of combined aggression from Russia and China. Therefore, the United States needs a nuclear posture capable of simultaneously deterring both.

STRATEGIC POSTURE

Findings

In the context of a strategic posture deploying both conventional and nuclear capability, the traditional role of nuclear weapons in U.S. defense strategy remains valid and of continuing importance: deterrence of adversaries; assurance of Allies; achieving U.S. objectives should deterrence fail; and hedging against adverse events.

The U.S. triad of strategic delivery systems (intercontinental ballistic missiles, ballistic missile submarines, and bombers) has great value in presenting an intractable targeting problem for adversaries. Each system has unique strengths, such as responsiveness, survivability, and flexibility, that complement the others and vastly complicate adversary planning – thus contributing to deterrence. The triad will remain the key foundation for the U.S. strategic posture for the foreseeable future.

The triad provides the President with a range of options to protect U.S. national interests in any crisis or against any challenge. For example, the responsiveness and alert status of the ICBM force provides the President with options to:

- **Launch under Attack** – ICBMs are launched before they are destroyed by an adversary's preemptive counterforce attack; or
- **Ride-Out** – The U.S. absorbs an adversary first strike on its ICBM force and responds with forces at a time and place of its choosing.

The President is never compelled to launch ICBMs under attack.

The strategic setting in 2010, which informed the current POR, led to these assumptions:

- New START force levels were a sufficient deterrent capability against Russia;
- The PRC was a lesser-included case; and

- The aggressive foreign policies of China and Russia, the extent of their nuclear modernization, and the possibility of conflict with China and Russia were not foreseen.

U.S. strategic force requirements were set more than a decade ago and anticipated a significantly more benign threat environment than the one the United States now faces. Therefore, the United States requires an updated strategic posture to address the projected security environment. This is an urgent task that has yet to be acknowledged.

U.S. deterrence requirements must be tailored to each adversary in light of characteristics specific to their regime (e.g., goals, values, capabilities, vulnerabilities).

Chinese and Russian force modernization and expansion confronts the United States with a two-peer threat environment. In the emerging environment, the United States must maintain a resilient nuclear force that can absorb a first strike and respond effectively with enough forces to cause unacceptable damage to the aggressor while still posing a credible threat to the other nuclear power.

If China and Russia continue on their current trajectories with respect to force modernization and expansion, the rate at which U.S. nuclear force modernization is proceeding will likely add unacceptable risk.

Deployed strategic nuclear force requirements will increase for the United States in such a threat environment.

The current multi-program, multi-decade U.S. nuclear modernization program is necessary, but not sufficient to enable the nuclear strategy recommended by the Commission to address an unprecedented two-nuclear-peer threat environment. To avoid additional risk and meet emerging challenges, the United States must act now to pursue additional measures and programs. Additional measures beyond the planned modernization of strategic delivery vehicles and warheads may include either or both qualitative and quantitative adjustments in the U.S. strategic posture.

Current U.S. nuclear capabilities are safe, secure, reliable, and effective, and all operate on a daily basis, however, they have been extended past their original design lives.

Modernizing the U.S. nuclear command and control system is urgently required to ensure it remains survivable, adaptable, resilient, and effective against future threats.

The nuclear deterrent modernization POR, for DOD and DOE/NNSA combined, began in 2011. Its principal traits are as follows:

- Continued adherence to the strategic triad structure and theater dual-capable aircraft structure;
- Each leg of the triad and its NC3 systems are being modernized and replaced, which presents a challenge to DOD for the next 25 years;
- The new delivery systems will begin to be fielded in the late 2020s, but currently planned modernization will require several decades;
- Unlike previous platforms, the new systems are generally being designed to operate longer, and to more easily adapt to emerging threats, such as adversary air and missile defenses; and
- DOE/NNSA will be significantly challenged to deliver on time the nuclear weapons required by DOD.

The U.S. POR calls for "just-in-time" delivery. The new systems will enter service at the same time the legacy systems must be retired. Although the POR is underway in both DOD and DOE/NNSA, significant risks to the schedule are apparent as most margin has been used. DOD and DOE/ NNSA, while candid

about challenges, express "can-do" confidence, notwithstanding multiple factors that are already driving delays of programs.

This just-in-time situation means that delays in elements of the POR, or any early aging out of an existing system, will create shortfalls in U.S. nuclear capabilities.

There are several ways to mitigate the impact of shortfalls created by problems in the execution of the POR, but none are optimal or completely meet the requirements of the modernization program. Some require significant additional investment and/or near-term decisions to hedge against the problem. Others may require potential near-term decisions to be able to field different warhead loads. For example, sustaining the legacy force until its modernized replacement arrives will require additional investment in order to prevent a loss of capability and sustain the U.S. vital nuclear deterrent.

Additional U.S. theater nuclear capabilities will be necessary in both Europe and the Indo-Pacific regions to deter adversary nuclear use and offset local conventional superiority. These additional theater capabilities will need to be deployable, survivable, and variable in their available yield options.

Modernizing nuclear command and control capabilities is necessary if U.S. systems are to remain resilient and effective against future threats. NC3 modernization must also address the need for cross-Combatant Command interaction in planning and executing combat operations in a regional context.

Advancements in emerging technologies could pose new risks, but also new opportunities to defend, survive, and prevail. If the United States effectively adapts and employs these technologies, they could contribute to the survivability and effectiveness of U.S. nuclear forces. Of particular note are hypersonic delivery vehicles, quantum computing, generative AI, and autonomous vehicles.

Recommendations

The Commission recommends fully and urgently executing the U.S. nuclear modernization POR, which includes replacement of all U.S. nuclear delivery systems, modernization of their warheads, comprehensive modernization of U.S. nuclear command, control, and communications, and recapitalizing the nuclear enterprise infrastructure at the DOD and DOE/NNSA.

At the same time, the current modernization program should be supplemented to ensure U.S. nuclear strategy remains effective in a two-nuclear-peer environment. Modifications to both strategic nuclear forces and theater nuclear forces are urgently necessary.

The U.S. strategic nuclear force posture should be modified in order to:

- Address the larger number of targets. The Chinese nuclear threat is no longer a "lesser included case" of the Russian nuclear threat, resulting in the need to deter and achieve objectives against China and Russia simultaneously should deterrence fail;
- Address the possibility that China will field large scale counterforce-capable missile forces that pose a threat to U.S. strategic nuclear forces on par with the threat Russia poses to those forces today;
- Assure the United States continues to avoid reliance on executing ICBM launch under attack to retain an effective deterrent; and
- Account for advances in Russian and Chinese IAMD.

The following strategic nuclear force posture modifications should be pursued with urgency:

- Prepare to upload some or all of the nation's hedge warheads;

- Plan to deploy the Sentinel ICBM in a MIRVed configuration;
- Increase the planned number of deployed Long-Range Standoff Weapons;
- Increase the planned number of B-21 bombers and the tankers an expanded force would require;
- Increase the planned production of Columbia SSBNs and their Trident ballistic missile systems, and accelerate development and deployment of D5 LE2;
- Pursue the feasibility of fielding some portion of the future ICBM force in a road mobile configuration;
- Accelerate efforts to develop advanced countermeasures to adversary IAMD; and
- Initiate planning and preparations for a portion of the future bomber fleet to be on continuous alert status, in time for the B-21 Full Operational Capability (FOC) date.

A comprehensive set of risk-mitigating actions across U.S. nuclear forces must also be executed to ensure that delays in modernization programs or early age-out of currently deployed systems do not result in militarily significant shortfalls in deployed nuclear capability. The Commission recommends that set of urgent actions include, at a minimum:

- Exercise upload of ICBM and SLBM warheads on existing deployed systems;
- Develop plans and procedures to "re-convert" SLBM launchers and B-52 bombers that were rendered incapable of launching a nuclear weapon under New START; and
- Provide sufficient funding to ensure existing deployed systems, such as NC3 and Ohio-class SSBNs, can operate past their currently planned retirement dates, as technically feasible.

U.S. theater nuclear force posture should be urgently modified in order to:

- Provide the President a range of militarily effective nuclear response options to deter or counter Chinese or Russian limited nuclear use in theater;
- Address the need for U.S. theater nuclear forces deployed or based in the Asia-Pacific theater;
- Compensate for any shortfall in U.S. and allied non-nuclear capabilities in a sequential or simultaneous two-theater conflict against China and Russia.
- Address advances in Chinese and Russian IAMD; and
- Address allied concerns regarding extended deterrence.

The Commission recommends the following U.S. theater nuclear force posture modifications:

- Develop and deploy theater nuclear delivery systems that have some or all of the following attributes:
  - Forward-deployed or deployable in the European and Asia-Pacific theaters;
  - Survivable against preemptive attack without force generation day-to-day;
  - A range of explosive yield options, including low yield;
  - Capable of penetrating advanced IAMD with high confidence; and
  - Operationally relevant weapon delivery timeline (promptness);
- Ensure that USEUCOM and USINDOPACOM are capable of planning integrated nuclear-conventional operations in their respective areas of responsibility (AORs).

NUCLEAR SECURITY ENTERPRISE

Findings

A critical element of U.S. strategic posture is the nation's ability to develop, produce, and maintain the nuclear weapon systems necessary to enable U.S. strategy.

Expanding the infrastructure and supply chain for the nation's nuclear complex and its strategic capabilities is part of an overall national need to broaden and deepen the American defense industrial base. This includes the ability to accelerate the incorporation of emerging and innovative weapon and production technologies.

The Commission believes that due to previous years of neglect and a dangerous threat environment, the infrastructure (facilities and workforce) that enables development and fielding of strategic capabilities needs to be overhauled. This will require nothing short of a government-wide focus akin to the U.S. moonshot of the 1960s.

Unlike Russia, China, and even the North Korea, the United States does not currently have the production capacity to deliver new nuclear warheads with newly manufactured pits.

Sustainment of the legacy deterrent force and execution of the nuclear modernization POR— maintaining required capability during the complex legacy-to-modern transition in both warheads and delivery platforms—is now stressing and will continue to stress the capacity of the infrastructure and industrial base supporting both DOD and DOE/NNSA.

DOE/NNSA's infrastructure recapitalization in the nuclear weapons complex—the replacement or modernization of 1940s-era Manhattan Project and other facilities—is underway. The infrastructure modernization POR is necessary but not sufficient to meet the future threat. When the DOE/NNSA production infrastructure modernization was planned it was sized to support the stockpile the United States believed it needed in 2010 to support a New START size force. As a result, the planned DOE/NNSA production infrastructure will not have sufficient capacity to support the force needed to address the future threat.

In the Strategic Posture chapter, the Commission has recommended immediate actions to mitigate risks in the nuclear modernization POR and has recommended responses to the new threat environment, including additional capabilities to the POR. These steps will drive extraordinary demands on the already-constrained DOD and DOE/NNSA infrastructure.

DOE/NNSA's infrastructure recapitalization faces many cost and schedule issues, some of which are outside DOE/NNSA's control. Nevertheless, this recapitalization is absolutely essential to build the capacity of the complex's production capability.

Infrastructure recapitalization for both DOD and DOE/NNSA is also hindered by unpredictable incrementally funded budget levels each fiscal year, exacerbated by the continued practice of Continuing Resolutions to fund the government.

Component organizations responsible for strategic infrastructure must conduct extraordinary advocacy for budget share inside their parent organizations in order to successfully garner necessary resources in the midst of their organization's many competing demands. This advocacy is required despite public statements by senior leaders that nuclear deterrence is their highest-priority national security mission.

The challenge of hiring and retaining a skilled workforce, for both DOD and DOE/NNSA, has also grown substantially.

Diminishing manufacturing sources, lack of skilled trades in the workforce, and supply chain fragility, among other things, inhibit both sustainment and modernization of the strategic deterrent force (platforms and warheads). Both DOD and DOE/NNSA are attempting to tackle these challenges, but it remains to be seen if these shortfalls can be overcome in time to prevent a gap in required capability. These are national-level challenges that require focused Executive and Legislative Branch leadership.

Regarding organizational issues related to the DOE/NNSA nuclear weapons complex, multiple administrations have taken steps to address the findings and recommendations made by the many previous assessments of DOE/NNSA's organizational effectiveness. Continued focus is critical, especially in light of the new demands placed on the weapons complex.

Recommendations

The Commission recommends the DOD and DOE/NNSA urgently expand strategic infrastructure to ensure sufficient capacity to:

- Meet the capability and schedule requirements of the current nuclear modernization POR and the requirements of the force posture modifications recommended by the Commission in time to address the two-peer threat;
- Provide an effective hedge against four forms of risk: technical failure of a warhead or delivery system, programmatic delays, operational loss of delivery systems, and further worsening of the geopolitical environment; and
- Communicate to U.S. adversaries that the United States has the technical capabilities and political will—paired with all other instruments of national power—necessary to ensure they cannot gain a geopolitical or military advantage through nuclear arms racing.

The Commission recommends this urgent expansion of the capacity of the U.S. nuclear weapons defense industrial base and the DOE/NNSA nuclear security enterprise include the flexibility to respond to emerging requirements in a timely fashion.

In order to support the Commission's recommended strategy, with respect to resourcing, the Commission recommends Congress:

- Fund an overhaul and expansion of the capacity of the U.S. nuclear weapons defense industrial base and the DOE/NNSA nuclear security enterprise;
- Fund NNSA's recapitalization efforts, including weapons science, design and production infrastructure. In order to support these appropriations, NNSA should deliver to Congress a long-term prioritized recapitalization plan that highlights the roles played by each facility, the highest risk factors at each facility, actions already taken to mitigate those risks, and opportunities for additional risk mitigation;
- Forge and sustain bipartisan consensus and year-to-year funding stability to enable defense industry to respond to innovative DOD contracting approaches and invest with more certainty;
- Pass annual DOD and DOE authorization and appropriation bills on time. No continuing resolutions;
- Avoid placing artificial caps on defense spending; necessary expansion of DOE/NNSA and DOD infrastructure for strategic capabilities require increases in funding for these fundamental national security priorities;
- Place purview of all 050 programs (President's Budget line item for "national security") that are in NNSA under Defense appropriations subcommittees (HAC-D, SAC-D); and

- Work with state governments and private industry to expand the manufacturing and supply base for strategic weapons.

With respect to capacity and effectiveness of the nation's infrastructure and supply chain for its strategic capabilities, the Commission recommends:

- DOE/NNSA plan to increase production capacity beyond current POR, in accord with earlier Recommendations, to meet the needs of the two-peer threat;
- DOD incentivize private industry bidding on government Request for Proposals (RFPs) by offering multi-year contracts that send a steady demand signal, especially for smaller sustainment-related requirements;
- DOE/NNSA incentivize private industry bidding on government RFPs for equipment and supplies by offering multi-year contracts that send a steady demand signal;
- DOD and DOE/NNSA continue to reform acquisition and project management processes to better reward on-time product delivery;
- DOD increase shipbuilding capacity, by working with industry to establish or renovate a third shipyard dedicated to production of nuclear-powered vessels, with particular emphasis on nuclear-powered submarines.

With respect to workforce, the Commission recommends:

- Cabinet Secretaries, working with states and union leaders, establish and increase the technical education and vocational training programs required to create the nation's necessary skilled-trades workforce for the nuclear enterprise;
- Leaders in DOD and DOE/NNSA establish a workplace culture in the nuclear security enterprise that reinforces the strategic importance of such work; grows effective leaders, including mid-tier leaders; adjusts to new workplace expectations; rewards experimentation; recognizes failure as part of the development process; and delegates responsibility to those program experts at the lowest level who are most knowledgeable of that program's characteristics; and
- DOD and DOE/NNSA expand use of innovative contracting methods, including offering higher pay scales for high-priority projects in order to better attract and retain skilled personnel.

With respect to organization and governance, the Commission recommends:

- Secretary of Defense and Secretary of Energy establish the nuclear deterrence mission as the #1 priority in their Departments' processes, to help eliminate the gap between statements of priority and actual results;
- Secretary of Energy protect and reinforce NNSA's independent role as steward of the nuclear warhead stockpile and its semi-autonomous operating model;
- Congress elevate the Under Secretary for Nuclear Security/NNSA Administrator position in DOE to Deputy Secretary for Nuclear Security;
- The Senate Armed Services Committee invite the nominee for Secretary of Energy to appear before the committee in advance of confirmation; and
- The NWC expand its enterprise-wide approach in order to effectively synchronize the plans and programs of DOD and DOE/NNSA in the midst of multi-faceted challenges.

U.S. NON-NUCLEAR CAPABILITIES

Findings

China, Russia, North Korea, and Iran continue to increase their regional and intercontinental missile capabilities. Missile threats to the U.S. homeland, to U.S. Allies and partners, and U.S. forces overseas are growing both quantitatively and qualitatively.

Homeland and regional missile defense systems constitute a critical component of U.S. efforts to deter, and if necessary, defeat missile attacks by states such as North Korea and Iran, while enhancing U.S. freedom of action to conduct regional military operations. IAMD can limit or prevent damage from an adversary's offensive missile strikes, and thus contribute to the U.S. ability to deter, respond to, and stabilize crisis or conflict.

IAMD capabilities play an important role in U.S. strategy by serving as a "deterrence by denial" component of the broader deterrence framework. IAMD adds resilience to U.S. defense strategy; complicates adversary decision-making by creating uncertainty about the success of offensive missile use; reduces incentives to conduct coercive attacks by increasing the size of the attack required to, potentially, be effective; assures Allies and partners that the United States will not be deterred from fulfilling its global security commitments; and in crisis or conflict, offers a military option that may be less escalatory than offensive strikes.

Given Russia's and China's technical capabilities and financial resources, the United States has not built an impenetrable missile defense "shield" over the entire U.S. homeland. However, it does not need to for U.S. missile defenses to provide critical defense capabilities that contribute to deterrence.

Given the threat picture for 2027-2035, the currently planned U.S. homeland IAMD capability does not adequately defend against coercive attacks from China and Russia. Such attacks are potentially designed to dissuade and deter the United States from defending or supporting its Allies and partners in a regional conflict; keep the United States from participating in any confrontation; and divide U.S. alliances. To defend against a coercive attack from China or Russia, while staying ahead of the North Korean threat, the United States will require additional IAMD capabilities beyond the current POR.

U.S. Northern Command (USNORTHCOM) needs improved warning and defensive capabilities to protect critical U.S. infrastructure from conventional or nuclear attack from air- and sea-launched cruise missiles—systems that ground-based interceptors (GBIs) are not designed to counter. In addition, CDRUSNORTHCOM has limited authority to detect and defeat such missiles inside U.S. airspace.

Strategic investments in research, development, test and engineering of advanced sensor architectures, interceptors, cruise and hypersonic missile defenses, and area or point defenses are urgently needed. If proven feasible, these capabilities would enhance deterrence and provide a significant measure of protection for the homeland to help address coercive nuclear or conventional strikes.

The space domain provides critical capabilities for strategic posture such as protected, resilient communications; positioning, navigation, and timing; ISR; and global, persistent missile warning and attack assessment.

Space situational awareness (SSA) is and will continue to be indispensable to U.S. and allied space and terrestrial missions. SSA enables both defensive and offensive counterspace operations necessary to conduct effective terrestrial military operations.

Space is now a fully contested domain; Russia and China have fielded counterspace capabilities that make it a warfighting domain. An integrated approach to deterring adversary aggression in space is essential to

protect U.S. and allied space capabilities, especially for adversaries who believe they can achieve asymmetric benefits from denying or eliminating space assets.

Survivability and endurability of essential U.S. and allied space capabilities must be ensured through active defense, passive defense, and U.S. terrestrial strike and offensive counterspace capabilities. Essential U.S. space capabilities constitute critical infrastructure that merits an explicit threat of response to enhance deterrence of adversary strategic attack.

Of note, U.S. missile defense benefits greatly from space-based sensors; its mission and other national security missions stand to gain even more from increasingly capable space-based networks, including the growing cost-effective commercial capabilities.

Existing U.S. and allied general purpose forces' long-range non-nuclear precision strike capabilities are inadequate. Current programs are not pacing the threat.

Current plans to modernize and expand the nation's global mobility capabilities, especially its fleet of air refueling tankers, are inadequate for a simultaneous two-war construct.

Effective cyber defense requires a whole-of-government approach, as the Department of Defense has neither the mission nor the necessary authorities to defend civilian critical infrastructure.

It is essential to incorporate cyber capabilities into strategic and theater campaign plans and the deliberate planning process of the Combatant Commands.

Securing U.S. sensitive data will require working collaboratively with the defense industrial base.

Cyber security programs for, and active cyber defense of, the nation's strategic systems play a major role in ensuring the reliability and effectiveness of the U.S. nuclear deterrent force.

Despite frequent use of economic sanctions, the U.S. government does not have a well-understood concept nor a synchronized playbook for employing financial and economic measures to bolster U.S. efforts to deter adversary aggression. Such measures include the imposition of sanctions, trade and investment restrictions, and export controls, and depend on coordinated action within the interagency.

An important national goal is avoiding strategic surprise. The Commission is concerned that emerging technologies could result in military capabilities that would rapidly and surprisingly shift the military balance between the United States and its Allies and potential adversaries. In addition, these technologies increase the number of pathways by which new threats as well as misperceptions and miscalculations can emerge.

Emerging technologies may significantly benefit U.S. security and strengthen U.S. defense capabilities. Some applications, for instance, could improve information flow and crisis management and potentially reduce the risk of miscalculation.

U.S. advances in AI, quantum computing, additive manufacturing, ubiquitous sensing, big data analytics, and directed energy offer potential benefits to U.S. strategic posture, especially if streamlined, rapid acquisition methods are employed.

Current procurement processes are generally slow and ill-suited to adequately integrate new capabilities. Funding and bureaucratic obstacles remain impediments to rapidly using commercial capabilities. Effectively leveraging U.S. and allied innovation requires a cultural and bureaucratic shift.

Recommendations

The Commission recommends DOD develop, acquire, and deploy the Next Generation Interceptors as soon as possible.

The Commission recommends the Director of MDA, in conjunction with CDRUSNORTHCOM and CDRUSSTRATCOM, determine the required effectiveness criteria and number of additional GBIs/NGIs that will be needed overall to stay ahead of the North Korean threat. In addition, they should assess the feasibility to counter coercive attacks from cruise, hypersonic, and ballistic missiles from any adversary.

The United States should develop and field homeland IAMD capabilities that can deter and defeat coercive attacks by Russia and China. To this end, the Commission recommends the Chairman of the Joint Chiefs of Staff, in conjunction with the CDRUSNORTHCOM, identify existing or new sensor and interceptor capabilities necessary to defend critical infrastructure assets. The Secretary of Defense should ensure adequate funding is incorporated in the Service and Agency budgets to fulfill these requirements. Congress should appropriate the funds necessary for the sensors and interceptors necessary to defend these assets.

The Commission recommends the Secretary of Defense and the Chairman of the Joint Chiefs of Staff, in conjunction with relevant Combatant Commanders, review and determine what additional IAMD requirements exist in geographic areas of responsibility and identify existing or new capabilities, including capabilities that could be provided by Allies and partners, that could provide this necessary defense. The Secretary of Defense should ensure adequate funding is incorporated in the Service and Agency budgets to fulfill these requirements.

The Secretary of Defense should direct research, development, test and evaluation into advanced IAMD capabilities, leveraging all domains, including land, sea, air, and space. These activities should focus on sensor architectures, integrated command and control, interceptors, cruise and hypersonic missile defenses, and area or point defenses. If any of these capabilities prove feasible, the Department should pursue deployment with urgency.

In order to achieve advanced, potentially game-changing missile defense/defeat capabilities, the Commission recommends Congress promptly and consistently fund significant additional new investments in the defense industrial base, cooperation with the private sector, and expansion of the technical talent pipeline in order to conduct foundational research and development, explore the application of emerging technologies, and develop advanced IAMD systems.

The Commission recommends that the Secretary of Defense and the Military Departments transfer operations and sustainment responsibility for missile defense to the appropriate Military Departments by 1 October 2024. This will allow the MDA to focus on research, development, prototyping and testing.

Funding needs to be prioritized and long-range non-nuclear precision strike programs must be accelerated to meet the operational need and in greater quantities than currently planned.

Funding needs to be prioritized and air refueling tanker programs must be accelerated to meet the operational needs of a two-theater conflict.

Department of Defense leaders should increase the focus on and continue to prioritize adaptive cyber defense of strategic delivery platforms, warheads, and NC3 systems.

Congress should not auction for commercial use those portions of the electromagnetic spectrum critical for national security and homeland defense without proper cost-benefit analysis and due diligence by DOD and other federal agencies.

DOD should accelerate and direct further development of advanced EMSO capabilities and the integration of robust EMSO into CCMD deliberate planning.

The Commission recommends the President direct a whole-of-government approach to financial and economic statecraft that analyzes what adversaries value in the economic and financial domain; plans the tailored employment of financial and economic tools in concert with planning for other tools of national power; executes a synchronized use of financial and economic levers as part of the nation's broader deterrence campaign; assesses the effects of financial tools on adversaries; and continues this analysis-planning-execution-assessment cycle until a deterrent effect is achieved.

DOD routinely conducts this type of planning for application of military forces. Therefore, DOD is well positioned to advise and assist the Treasury, State, and Commerce Departments, and others, with the planning processes for the application of financial and economic tools.

The Executive Branch should initiate and Congress should authorize and appropriate a whole-of-government focus—including a strong partnership among academia, industry, and government—to ensure the United States and its Allies remain at the cutting edge of basic and applied research of emerging technologies, such as big data analytics, quantum computing, and AI, in order to avoid strategic surprise and leverage important new tools for national security.

The Departments of Defense and Energy should further expand processes for streamlined requirements development and rapid and more agile acquisition. This would enable insertion of innovative technologies to accelerate applications of new capabilities and have an impact on the 2027-2035 strategic landscape and beyond. To this end, the Departments of Defense and Energy should establish agile acquisition pathways and set aside specific budget lines and funding to rapidly acquire and leverage innovative commercial technologies for applications to strategic deterrence. The Departments should work with Congress to allow the budget flexibility necessary, while providing transparency and ensuring accountability, to enable rapid acquisition for use of new technologies and concepts.

ALLIES AND PARTNERS

Findings

It is in the U.S. national interest to maintain, strengthen, and when appropriate expand its network of alliances and partnerships. These relationships strengthen American security by deterring aggression regionally before it can reach the U.S. homeland, while also enabling U.S. economic prosperity through access to international markets. Withdrawing from U.S. alliances and partnerships would directly benefit U.S. adversaries, invite aggression that the United States might later have to reverse, and ultimately decrease American security and economic prosperity.

Just as the U.S. benefits from its alliances, Allies rely on the U.S. strategic posture because it forms an integral part of their defense strategy. In some cases, Allies are jointly developing capabilities that benefit mutual defense. The United States uses its strategic posture to support Allies by extending to them deterrence, including nuclear deterrence, against adversaries. The U.S. strategic posture also serves to assure Allies that the United States is a credible security partner. As a result, many Allies perceive no need to develop their own nuclear weapon capabilities, which is in the U.S. national security interest. Any major changes to U.S. strategic posture, policies, or capabilities will, therefore, have great effect on Allies' perceptions and their deterrence and assurance requirements.

Given the geographic distance between the U.S. homeland and its Allies overseas, and the long lead time for force projection from the U.S. homeland, Allies stressed the importance of U.S. military forces being available in theater for deterrence and assurance purposes.

Allies perceive that the risk of Russian and Chinese aggression and potential nuclear employment has increased; and thus, U.S. nuclear and conventional capabilities are increasingly important for credible extended deterrence. Allies expressed an aversion to any major change in the current U.S. nuclear declaratory policy of calculated ambiguity.

Additionally, a strong and credible U.S. nuclear arsenal is one of the greatest nonproliferation tools the United States possesses for assuring Allies they do not need to pursue nuclear weapons of their own.

The relationship that exists between NATO, its member states, and the United States is strong, and deserves continuous care. The Commission supports the initiative by NATO leadership to revitalize the Nuclear Planning Group (NPG), increase the operational effectiveness of NATO DCA, and conduct additional exercises with broader participation by Allies.

The United Kingdom and France provide important nuclear forces that contribute to the NATO Alliance. The United Kingdom, in particular, contributes to deterrence and complicates adversary planning with its independent nuclear arsenal.

The Commission supports NATO Allies' commitment to increased investments in their defense capabilities in order to enhance deterrence of Russian aggression.

The special relationship that exists between the United Kingdom and the United States is strong, and deserves continuous care.

As America's oldest ally, France contributes to security in Europe and Asia, and remains an important contributor to NATO.

The Australia, United Kingdom, United States (AUKUS) agreement strengthens U.S.-allied bonds by expanding areas of cooperation and enhancing deterrent capability in the Indo-Pacific region.

The Commission supports the Washington Declaration and all ongoing efforts with Japan and South Korea to strengthen extended deterrence consultations.

Allies are increasingly concerned by the actions of Russia and China. Other Allies are equally concerned with the actions of North Korea and Iran. European Allies communicated to the Commission how the security environment has fundamentally changed due to Russia's further invasion of Ukraine, and its use of overt nuclear coercion. Likewise, Allies in Asia communicated to the Commission their increasing concern over China's aggressive foreign policies, economic coercion, and rapidly growing nuclear arsenal.

Some Allies in both Europe and Asia have thus begun to invest more heavily in their own conventional military forces, and seek opportunities to jointly develop capabilities with the United States. Allies repeatedly stressed that the worsening threat environment requires closer and stronger cooperation with the United States because the consequences of deterrence failure are so severe, and for some Allies, existential.

Recommendations

The Commission recommends the Executive branch recognize that any major change to U.S. strategic posture, policies, or capabilities will have great effect on Allies' perceptions and their deterrence and assurance requirements; as a result, any changes should be predicated on meaningful consultations.

The Commission recommends the Department of Defense continue increasing interoperability between U.S. and allied systems in order to maximize regional deterrent effects, by balancing the need for classification and export controls with the critical need to increase technological cooperation and combined capabilities.

RISK REDUCTION

Findings

The Commission believes it is of paramount importance for the United States to work to reduce strategic risks. This involves activities and programs across the U.S. government, including in nonproliferation and arms control, as well as the maintenance of strong, viable, and resilient military forces.

U.S. vital interests and international security are served by robust diplomatic engagements that reduce uncertainty and reduce the risk of deterrence failure and unnecessary arms competition. It is in the U.S. national interest to lead, and be recognized as leading, diplomatic efforts to reduce such risks.

Although the potential for a return to a more cooperative relationship with Russia and China now seems remote, we cannot rule out the possibility of change in the 2027-2035 timeframe.

Risk reduction measures can increase predictability, reduce uncertainty and the risk of misperception and miscalculation.

U.S. nonproliferation efforts and the nonproliferation regime have slowed the spread of nuclear weapons, thereby making the world safer. It is in the U.S. interest to prevent the spread of nuclear weapons to additional states.

The U.S. nuclear umbrella has protected Allies, thereby removing the need for them to develop their own nuclear weapons.

U.S. threat reduction measures have successfully constrained the availability of nuclear materials, technology, and expertise to potential proliferators.

The Commission is concerned that new developments in genetically engineered and novel biological agents pose a significant threat to U.S. and allied security, and the Commission assesses that the BWC will not effectively prevent the development and deployment of new biological weapons.

Effectively verifiable arms control measures with parties who comply with their obligations can improve international security and stability. Such measures can provide predictability and reduce the threats to U.S. vital interests and those of its Allies.

Arms control agreements in the U.S. national interest are potentially important tools to support U.S. policy goals, but given Russia's history of noncompliance and illegal treaty suspensions, and China's continued intransigence on arms control dialogue, the United States cannot develop its strategic posture based on the assumption that arms control agreements are imminent or will always be in force. In short, the United States must be prepared for a future with and without arms control agreements.

The current policy of the Chinese leadership is not to engage in substantive dialogue on nuclear arms control or risk reduction measures.

The United States cannot set its arms control limits without first determining the requirements for its overall strategic posture, and the strategy that those requirements will support.

While there is no prospect of a meaningful arms control treaty being negotiated with Russia in the foreseeable future, any future nuclear arms control treaty must, as the U.S. Senate stated in its resolution of ratification for New START, address all Russian nuclear weapons.

Emerging technologies have the potential to support U.S. efforts in arms control, verification, and risk reduction.

Certain weapon technologies deserve urgent attention, as incipient threats and potential subjects for future arms control negotiations. An example is China's development of ICBM-launched FOBS or MOBS.

Recommendations

The Commission recommends that a strategy to address the two-nuclear-peer threat environment be a prerequisite for developing U.S. nuclear arms control limits for the 2027-2035 timeframe. The Commission recommends that once a strategy and its related force requirements are established, the U.S. government determine whether and how nuclear arms control limits continue to enhance U.S. security. The United States cannot properly evaluate a future nuclear arms control proposal that will serve the U.S. interest, by reducing risk and avoiding the costs of an unconstrained nuclear arms competition, without knowing what the U.S. nuclear force requirements will be. Any future arms control proposal must be consistent with U.S. nuclear force requirements.

The Commission recommends that the United States continue to explore nuclear arms control opportunities and conduct research into potential verification technologies in order to support or enable future negotiations in the U.S. national interest that seek to limit all nuclear weapon types, should the geopolitical environment change.

Where formal nuclear arms control agreements are not possible, the Commission recommends pursuing nuclear risk reduction measures to increase predictability and reduce uncertainty and the chances for misperception and miscalculation.

The Commission recommends continued pursuit of such measures, to include: ballistic missile launch notification agreements; open ocean targeting of ballistic missiles; hotline or leadership communications agreements (crisis communications); Agreement on the Prevention of Incidents On and Over the High Seas; strategic stability talks; peacetime norms regarding activities in space and cyber space in peacetime; and military exercise notifications and transparency.

The Commission recommends that the United States use all its instruments of national power, including its strong economic, political and defense capabilities, to turn Russia and China away from their nuclear arms build-ups and toward negotiation of effectively verifiable arms control measures.

- The Commission condemns the unwarranted and illegal Russian suspension of New START.

The Commission recommends the Departments of Defense, Energy, and State in a coordinated fashion assess the potential impacts of new and emerging technologies on the U.S. strategic posture, with the goal of identifying potentially destabilizing or threatening capabilities the United States may want to address, whether through arms control negotiations or other means.

- The Commission believes China's development of FOBS/MOBS is a compelling example of this phenomenon. The Commission recommends the United States, as an urgent matter, propose an immediate global ban on further testing and deployment of missiles in a FOB/MOB mode.

The Commission recommends that the United States develop measures to prevent the proliferation of threatening emerging military technologies to hostile states.

Given the importance of preventing the further proliferation of nuclear weapons, the Commission recommends the United States continue to support the current nonproliferation regime centered on the NPT.

The Commission recommends the U.S. evaluate diplomatic measures, whether in the BWC context or beyond, to address the threat of novel biological weapons. It may be necessary to strengthen the

development of multilateral transparency and enforcement mechanisms related to the handling of dangerous pathogens as well as BWC violations.

Madelyn R. Creedon – Chair

The Honorable Madelyn Creedon had a long career in federal service; she served most recently as Principal Deputy Administrator of the National Nuclear Security Administration (NNSA) within the Department of Energy, a position she held from 2014 to 2017. She also served in the Pentagon as Assistant Secretary of Defense for Global Strategic Affairs from 2011 to 2014, overseeing policy development in the areas of missile defense, nuclear security, combatting WMD, cybersecurity, and space.

Creedon served as counsel for the U.S. Senate Committee on Armed Services for many years, beginning in 1990; assignments and focus areas included the Subcommittee on Strategic Forces as well as threat reduction and nuclear nonproliferation. During that time, she also served as Deputy Administrator for Defense Programs at the NNSA, Associate Deputy Secretary of Energy, and General Counsel for the Defense Base Closure and Realignment Commission. She started her career as a trial attorney at the Department of Energy.

Following retirement from Federal Service in 2017, Creedon established Green Marble Group, LLC, a consulting company, and currently serves on several advisory and other boards related to national security. She is also a non-resident senior fellow at The Brookings Institution and a research professor at the George Washington University Elliott School of International Affairs. She holds a J.D. from St. Louis University School of Law, and a B.A. from the University of Evansville.

Pursuant to section 1687 of the FY22 NDAA, Ms. Creedon's appointment to the Strategic Posture Commission was announced on March 16, 2022.

Jon L. Kyl – Vice Chair

Senator Jon Kyl served 18 years in the U.S. Senate, and before that, eight years in the U.S. House of Representatives, representing the state of Arizona. He was elected unanimously by his colleagues in 2008 to serve as Republican Whip, a position he held until his retirement in 2013. Kyl served on the Intelligence, Judiciary, Finance and Armed Services committees among others.

He was active in the Senate consideration of the Comprehensive Nuclear Test Ban Treaty, New START, and other arms limitation proposals, as well as strategic deterrence issues in numerous National Defense Authorization Acts.

After retiring from the Senate, Kyl served as a member of the Board of Directors of Sandia Laboratory for three years. In 2018, he was a member of the National Defense Strategy Commission. On September 5, 2018, Kyl was appointed by Arizona Governor Doug Ducey to fill the seat of the late Senator John McCain through the end of 2018.

Pursuant to section 1687 of the FY22 NDAA, Senator Kyl's appointment to the Strategic Posture Commission was announced on March 16, 2022.

DOCUMENTS SUBMITTED FOR THE RECORD

NOVEMBER 15, 2023

Opinion There's no such thing as 'limited' nuclear war

washingtonpost.com/opinions/theres-no-such-thing-as-limited-nuclear-war/2017/03/03/faef0de2-fd1c-11e6-8f41-ea6ed597e4ca_story.html

Dianne Feinstein March 4, 2017

By Dianne Feinstein

March 3, 2017 at 7:25 p.m. EST

Dianne Feinstein, a Democrat, represents California in the U.S. Senate.

Last month, it was revealed that a Pentagon advisory committee authored a report calling for the United States to invest in new nuclear weapons and consider resuming nuclear testing. The report even suggested researching less-powerful nuclear weapons that could be deployed without resorting to full-scale nuclear war. This is terrifying and deserves a swift, full-throated rebuke.

The report comes from the Defense Science Board, a committee made up of civilian experts. The board recommended "a more flexible nuclear enterprise that could produce, if needed, a rapid, tailored nuclear option for limited use."

Let me be crystal clear: There is no such thing as "limited use" nuclear weapons, and for a Pentagon advisory board to promote their development is absolutely unacceptable. This is even more problematic given President Trump's comments in support of a nuclear arms race.

As Deputy Defense Secretary Robert Work testified in 2015, "Anyone who thinks they can control escalation through the use of nuclear weapons is literally playing with fire. Escalation is escalation, and nuclear use would be the ultimate escalation."

Nuclear weapons present us with a paradox: We spend billions of dollars building and maintaining them in the hope that we never have to use them. The sole purpose of nuclear weapons must be to deter their use by others. Designing new low-yield nuclear weapons for limited strikes dangerously lowers the threshold for their use. Such a recommendation undermines the stability created by deterrence, thereby increasing the likelihood of sparking an unwinnable nuclear war.

Congress has stopped these reckless efforts in the past. During the George W. Bush administration, attempts to build a new nuclear "bunker buster" weapon were halted thanks to the leadership of then-Rep. David Hobson (R-Ohio).

Today, proponents of building new low-yield nuclear weapons claim that our nuclear arsenal is somehow insufficient to meet evolving threats around the globe. That is simply not true.

First, we already have low-yield weapons: One such bomb, the B61 gravity bomb, is currently being modernized at an estimated cost of as much as $10 billion. Second, our existing arsenal of deployed strategic weapons is more than adequate to deter aggression against us and our allies.

Our nuclear arsenal consists of approximately 4,000 stockpiled warheads, enough to destroy the world several times over. That's roughly the same number of warheads as Russia and almost four times more than all other countries combined.

We currently have two warheads in reserve for every warhead deployed, a "hedge" of 2 to 1. As we modernize our stockpile, we should strive to reduce both hedge and deployed warheads. In fact, a 2013 report by the Defense Department stated that our deployed arsenal could be further reduced by one-third while maintaining deterrence.

The Defense Science Board also suggested we should consider resuming nuclear testing to have confidence in our nuclear deterrent. That is also a wrongheaded position.

The Energy Department has ensured the safety, security and reliability of the nuclear stockpile for decades without conducting nuclear tests. The department's work has taught us more about our stockpile than we could ever learn from relying primarily on explosive testing. In fact, the National Nuclear Security Administration has reported that the country is in a better position to maintain the nuclear arsenal than it was before the testing ban went into effect more than 20 years ago.

Resuming nuclear testing would only encourage others to follow suit. The world is made far less safe if other nations begin testing and continue to pursue new nuclear weapons and capabilities. Instead of following the panel's recommendations, the Pentagon should follow its own 2013 guidance and further reduce our nuclear arsenal in concert with other nations.

To start, we can lead the way by working with Russia to develop a global ban on nuclear-tipped cruise missiles. These weapons are particularly dangerous because they can be mistaken for conventional cruise missiles, increasing the likelihood of an accidental nuclear exchange.

When it comes to nuclear weapons, victory is not measured by who has the most warheads, but by how long we last before someone uses one. This latest proposal may lower the threshold for using nuclear weapons, and the secretary of defense would be wise to reject it.

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

NOVEMBER 15, 2023

QUESTIONS SUBMITTED BY MR. ROGERS

Mr. ROGERS. Last month, the Department of Defense announced that it would begin pursuing a B61–13 gravity bomb. This new variant would leverage the existing B61–12 production line, and produce a new bomb that combines the accuracy of the B61–12 with the higher yield of B61–7, and will be done at minimal cost. It seems to me that this is the kind of thinking we should be encouraging DOD and NNSA to be pursuing? What is your opinion?

Ms. CREEDON and Senator KYL. The Commission agrees that the B61–13 gravity bomb is an example of the ability to develop innovative ways to provide new capabilities. The Commission found in its Report that "expanding the infrastructure and supply chain for the nation's nuclear complex and its strategic capabilities is part of an overall national need to broaden and deepen the American defense industrial base. This includes the ability to accelerate the incorporation of emerging and innovative weapon and production technologies." The Commission also noted the NNSA's current infrastructure has limited ability to provide flexibility or additional capacity. Comprehensive recapitalization of both DOE/NNSA and DoD infrastructure is absolutely necessary to support U.S. strategic posture now and into the future. This effort has begun but will require decades of funding and commitment to ensure success.

QUESTIONS SUBMITTED BY MR. TURNER

Mr. TURNER. The commission's report indicates that allies and partners play a key role in our strategic posture. Can you describe how our system of alliances across EUCOM and INDOPACOM currently reinforces deterrence, and what Congress can do to strengthen our relationships with our allies and partners, specifically with regard to nuclear deterrence and strategic defense?

Ms. CREEDON and Senator KYL. America's Allies perceive that the risk of Russian and Chinese aggression and potential nuclear employment has increased, and that strong and credible U.S. nuclear and conventional capabilities are critical for extended deterrence. Since 1949, cooperation and interoperability among NATO nations, and their commitment to Article V, have enabled a collective defense of Europe. U.S. nuclear forces form the backbone of NATO's nuclear deterrent. In addition to the strategic triad, the U.S. maintains forward-deployed dual-capable aircraft in support of NATO's deterrent mission. The United Kingdom and France also provide important nuclear forces to the Alliance. In Asia, U.S. nuclear forces provide extended deterrence for Australia, Japan, and the Republic of Korea. The AUKUS agreement strengthens U.S.-Allied relations by expanding areas of cooperation and interoperability, and enhancing deterrence in the Indo-Pacific region. The deepening of U.S. alliances and partnerships has proven critical to defending U.S. regional interests. Australia, Japan, the Republic of Korea, the Philippines, and Thailand facilitate, enable, and assist U.S. forces in guaranteeing freedom of navigation, maintaining access to markets, and defending the interests and sovereignty of the United States, its Allies, and its partners. Congress can ensure that America maintains this strategic deterrent posture by continuing to fund conventional/non-nuclear forces necessary for the European and Indo-Pacific theatres as well as the ongoing nuclear force modernization, supporting the expansion of security cooperation and technology transfer, and funding the expansion of the defense industrial base and related infrastructure. Expanding security cooperation with our Allies should include improved processes to increase our Allies' and partners' ability to purchase fully capable U.S. weapon systems, to secure training, and to jointly develop capabilities with the United States. Congress should remove existing statutory limitations and prohibitions to such cooperation and should also reassure America's Allies and strategic partners that the United States will honor its security commitments, no matter which political party holds power. The Commission found that alliance relationships strengthen American security and that withdrawing from these relationships and partnerships would directly benefit U.S. adversaries. Congress should help ensure that Russia and China understand that America is committed to sustaining the existing international order and that it will stand by its Allies and partners.

Mr. TURNER. The commission's report notes that "Russia and China are deploying missile defense systems designed to protect critical assets against U.S. offensive strikes; to date the United States has chosen to not build homeland missile defenses against major powers." Given the long-standing U.S. position to not develop missile defense capabilities to deter a near-peer strategic missile attacks, can you elaborate on the commission's recommendation that "The United States develop and field homeland IAMD that can deter and defeat coercive attacks by Russia and China, and determine the capabilities needed to stay ahead of the North Korean threat"? I would also note that North Korea unveiled its first tactical nuclear submarine in September of this year. Can you also address if you envision those capabilities to be kinetic, non-kinetic, or a mix of both?

Ms. CREEDON and Senator KYL. Over the next decade, the United States will face escalating challenges to defending the homeland. China, Russia, North Korea, and Iran continue to increase their regional and intercontinental conventional and nuclear missile capabilities. In particular, China's and Russia's strike systems will give them capabilities that will allow them to successfully threaten the U.S. homeland below the nuclear threshold. The Commission noted that while homeland defense has traditionally focused on intercontinental range ballistic missile threats, new types of sea and air-based systems pose new threats to the homeland. A major gap is the need for improved warning and defensive capabilities to protect critical U.S. infrastructure from conventional or nuclear attack from our adversaries' evolving cruise missiles and other standoff capabilities. The Commission's recommendation on homeland IAMD stems from the Commission's desire to dissuade and deter any adversary that might contemplate a "coercive attack" consisting of limited conventional or nuclear strikes intended to convince U.S. leadership that the costs of intervening or persevering in a conflict involving the attacker are too high. To address these coercive threats, we recommend the Secretary of Defense look at using the full range of technical capabilities for theatre, area, and point defenses, such as THAAD, Patriot and Aegis to defend against these threats. In addition, the Commission finds that significant improvements must be made to U.S. IAMD overall. As threats continue to grow the Commission believes the DOD must look at new approaches to achieving U.S. missile defense goals, including the use of space-based and directed energy capabilities, as simply scaling up current programs is not likely to be effective. IAMD capabilities play an important role in U.S. strategy by serving as a deterrence by denial component of the broader deterrence framework. The United States should also continue to rely on strategic deterrence to deal with the intercontinental ballistic missile threat. The Commission also recommends that the Secretary of Defense and the Military Departments transfer operations and sustainment responsibility for missile defense to the appropriate Military Departments by 1 October 2024, to allow the Missile Defense Agency to focus on research, development, prototyping, and testing.

QUESTIONS SUBMITTED BY MR. WALTZ

Mr. WALTZ. Chairwoman Creedon, you have said "without conventional forces to deter regional wars, the use of nuclear weapons regionally becomes more likely . . . and without significant conventional increases, the U.S. will need to rely more on nuclear weapons." I agree with you, but as you know, there are many challenges to increasing our conventional forces, to include the operations and maintenance (O&M) accounts. Unfortunately, every time we add a new system or platform to our defense inventory, O&M tends to be the bill payer. As chairman of the Readiness Committee, I am extremely concerned about our ability to keep our fighters flying, our ships at sea, and our armored vehicles rolling.

What considerations do you suggest being given to balancing new acquisitions, and maintaining what is already in our inventory?

Ms. CREEDON and Senator KYL. To mitigate any perceived deterrence gaps, we must maintain current nuclear force posture and capabilities while simultaneously modernizing and fielding new forces. Modernizing conventional forces is equally important as is ensuring that the O&M funds are adequate to support new and existing conventional systems until they are replaced. Modernization of conventional and nuclear systems will require an overhaul and/or an expansion of the defense industrial base capacity. As we have seen, sustainment of the legacy deterrent force challenges the capacity of the infrastructure and industrial base. The Commission recommends Congress promptly and consistently fund significant additional new investments in the defense industrial base. While we recognize budget realities, we also believe the nation must make these fundamental investments and U.S. leaders must communicate to U.S. citizens both the need and urgency to rebuild the conven-

tional and nuclear infrastructure and modernize the force. Investments in the nuclear enterprise are a relatively small portion of the overall defense budget but provide the backbone and foundation of deterrence and are the nation's highest defense priority. The investments the Commission recommends in both nuclear and conventional capabilities will provide a safe, secure, reliable, effective, and credible deterrent, which is essential to reduce the risk of conflict, most importantly nuclear conflict.

Mr. WALTZ. Your report states that our "strategic posture also requires a sizable industrial base to design and produce appropriate systems and capabilities. Throughout the Cold War, the size, diversity, and production capacity of the U.S. industrial base served to ensure that the U.S. strategic posture was "second to none."

Would you agree that our nation must recognize the national crisis in shipbuilding capacity, with China now having 200X the shipbuilding capacity of the United States.

Isn't that a strategic posture problem, and shouldn't we be driving strategic posture funding into this critical national infrastructure?

How would the commission recommend using an additional submarine shipyard, between competing demands for Virginia, Columbia, and AUKUS as well as auxiliary ships like salvage and rescue and other auxiliaries?

Would a 3rd yard have any positive spill-over effects to other areas of shipyard capacity for workforce, parts, repair, etc?

Ms. CREEDON and Senator KYL. The Commission agrees that the expansion of the defense infrastructure and supply chains is a component of the overall national need to broaden and deepen the defense industrial base. The Commission believes that due to years of downsizing and deferred maintenance, often driven by budgetary constraints, as well as the growing threat environment, the infrastructure that enables development and fielding of strategic capabilities needs to be overhauled, including replacing capabilities that have atrophied or no longer exist. The defense industrial base is indeed a critical component of the nation's overall strategic posture. The Commission recommends DoD increase shipbuilding capacity, by working with industry to establish or renovate a third shipyard dedicated to production of nuclear-powered vessels, with particular emphasis on nuclear-powered submarines. The Commission did not analyze "spill-over" benefits that might emerge from a third shipyard, but to the extent such effects were to exist they should be pursued.

Mr. WALTZ. I note with interest your point in Chapter 3 that China should no longer be considered a "lesser included" nuclear threat. As you know, the Trump Administration negotiated renewal of the New Start treaty for over a year in an effort to get China included and make it into a tripartite nuclear agreement—negotiated by Marshall Billingslea, a member of your commission—before the Biden Administration reversed course and renewed it.

In your view is this something that is necessary for New Start when renewal comes up again in a little over two years and for other arms control treaties?

Ms. CREEDON and Senator KYL. Due to the current state of U.S.-Russia relations and Russian violations of previous arms control agreements, as well as their "suspension" of New START, the prospects for a bilateral arms agreement in the near future are diminished. Also, China's continued intransigence on arms control dialogue does not bode well. Although the potential for a return to a more cooperative relationship with Russia and China now seems remote, we cannot rule out the possibility of change in the 2027–2035 timeframe. We recommend the United States continue to explore nuclear arms control opportunities with both adversaries and conduct research into potential verification technologies in order to support potential future negotiations. When evaluating the prospects for arms control treaties in the 2027–2035 timeframe, which is after the expiration of the New START, the United States must establish a strategy and related force requirements before it can develop negotiating positions. The Commission also believes that the United States should take steps now that will allow inspections and verification of any future treaties. Overall, the Commission believes risk reduction is an important component of strategic posture and that verifiable arms control treaties that serve the U.S. interest should be pursued.

Mr. WALTZ. In chapter four you discuss the need to develop and deploy new systems that would enhance U.S. theater nuclear forces. You also refer to the need for low-yield weapons, including to deter threat from China deploying its own low-yield weapons: "China will also for the first time have survivable (mobile) theater nuclear forces capable of conducting low-yield precision strikes on U.S. and allied forces and infrastructure across East Asia . . . [These] may reduce China's threshold for using nuclear weapons." In response you recommend new weapons: "These [U.S.] addi-

tional theater capabilities will need to be deployable, survivable, and variable in their available yield options."

This would be a major doctrinal shift—I assume you're talking about tactical nuclear weapons, right? Does the whole committee endorse that, and can you elaborate a bit more about the threats and capabilities that informed your recommendation?

Ms. CREEDON and Senator KYL. The Commission unanimously supports all the recommendations made in its Report. The Commission's recommendations are based firmly in deterrence. Russia maintains a large tactical/non-treaty accountable nuclear arsenal and the People's Republic of China, as you note, is also developing similar nuclear capabilities for regional application. In a regional conflict, either adversary may perceive that even though the United States has low-yield nuclear weapons, it has a military or coercive advantage in conducting a limited, presumably, low-yield nuclear strike if they believe the United States lacks a capability to respond in kind or would not respond with strategic nuclear forces. Russian strategy and doctrine envision limited first use of nuclear weapons to coerce war termination on terms acceptable to Russia, and a larger scale use of nuclear weapons to defeat NATO if Russia is decisively losing a war with NATO. President Putin's nuclear threats against Ukraine are an example of such a danger. The Commission notes that China appears to have expanded the theater nuclear war-fighting role in anticipation of a conflict over Taiwan and perhaps in pursuit of its broader national security objectives. U.S. nuclear force posture should provide the President a range of militarily effective nuclear response options to deter Chinese or Russian limited nuclear use.

Mr. WALTZ. In chapter seven, you discuss the importance of alliances and partnerships is vital to deter threats.

Can you speak more about the burden-sharing these partners should shoulder in a theater nuclear environment?

The AUKUS agreement has been a step forward in this, but of course does not directly relate to nuclear posture. What else is needed, particularly with Japan, South Korea, and Taiwan?

Ms. CREEDON and Senator KYL. In the USEUCOM theater, the cooperation and interoperability between NATO nations have enabled the collective defense of Europe and eased the burden on U.S. forces. Although U.S. nuclear forces form the backbone of NATO's nuclear deterrent, the United Kingdom and France provide important nuclear forces to the Alliance. In the Indo-Pacific region, our alliances and strategic partnerships are critical to defending our collective interests in the region. Our Allies and partners in the Indo-Pacific region, such as Japan, South Korea, Australia, and Taiwan, need to continue to collaborate and train with U.S. forces. This includes providing access, basing, and overflight; safe harbor for U.S. ships; hosting U.S. ground, air, maritime, and space forces; participating in military exercises to improve interoperability; and demonstrating their commitments to strengthen extended deterrence consultations. All these activities could be expanded and strengthened. U.S. extended deterrence guarantees are critical to maintaining these alliances and regional stability. Japan, South Korea, and Taiwan have thus far foregone indigenous nuclear weapons programs because of U.S. security assurances. This demonstrates the confidence our Allies and strategic partners place in the United States.

Mr. WALTZ. The Commission notes that the United States will face two nuclear peer adversaries for the first time, and the new partnership between Russian and Chinese leaders poses qualitatively new threats of potential opportunistic aggression and/or the risk of future cooperative two-theater aggression. China is pursuing a nuclear force build-up on a scale and pace unseen since the U.S.– Soviet nuclear arms race that ended in the late 1980s.

Did the commission look at how many current American bomb designers have actually built a bomb, and if so, how does that number compare to the Cold War era?

Did the commission look at how many pits we can currently produce annually, and if so, can you compare that capacity to the Cold War era?

Ms. CREEDON and Senator KYL. The Commission did not specifically compare the numbers of current weapon designers with those of the Cold War, although there were many more given the size of the Cold War nuclear arsenal. The Commission did not specifically compare how many pits we can currently produce to the Cold War-era capacity. The Commission notes, however, that the facility that manufactured pits during the Cold War was seen as surplus and thus was shut down by President H. W. Bush. The U.S. ability to manufacture pits is now being reestablished at Los Alamos National Laboratory, for the first time since the Rocky Flats facility was shuttered. During our visit to Los Alamos and engagements with NNSA leaders, we discussed the anticipated schedule and plans to produce 30 pits per year

(ppy) by 2026 at Los Alamos and another 50 ppy by 2030 at the Savannah River Plutonium Processing Facility.

QUESTIONS SUBMITTED BY MRS. McCLAIN

Mrs. MCCLAIN. The findings of the commission make clear that the US strategic posture must be able to adapt to an increasing threat environment. Are our material sourcing strategies aligned to support procurement of additional strategic assets if required? For example, I understand that the production plan is five lots of LRSO cruise missiles, which depends on early lifetime material buys for exactly the number planned, plus spares. How can we hedge to ensure a capacity to build more, if required?

Ms. CREEDON and Senator KYL. The Commission did not examine specific plans for the material sourcing necessary for the production of modernized systems like the LRSO. However, each weapon system program is held to an operational requirement set by USSTRATCOM. The planned acquisition for each weapon system considers material sourcing requirements in their initial buy. The Commission recommends the United States plan to increase production capacity beyond the current POR, to meet the needs of the two-peer threat. Consequently, we must plan to increase the corresponding material procurement. To try and shorten material sourcing timelines, the Commission urges the DOD and DOE/NNSA industrial bases to prioritize areas where capabilities are no longer available. The Commission recommends incentivizing private industry bidding on government RFPs, offering multi-year contracts, and implementing ways to create a steady demand signal to the private sector to hedge sufficient capacity building. Stable and on-time congressional funding would also help to ensure a reliable industrial base.

QUESTIONS SUBMITTED BY MS. SEWELL

Ms. SEWELL. The Commission highlighted integrated air and missile defense (IAMD) systems as one of the non-nuclear capabilities that is key to deterring and defeating incoming attacks. Can you share the Commission's most important and actionable recommendations to enhance IAMD capabilities?

Ms. CREEDON and Senator KYL. The Commission's most actionable recommendation to enhance IAMD capabilities is to have the Secretary of Defense address the needs of US Northern Command to improve warning and defensive capabilities to protect critical U.S. infrastructure from conventional or nuclear attack from air- and sea- launched cruise missiles—systems that ground based interceptors (GBIs) are not designed to counter. The Commission recommends the Chairman of the Joint Chiefs of Staff, in conjunction with the CDRUSNORTHCOM, identify existing or new sensor or interceptor capabilities necessary to defend critical infrastructure assets. The Commission also recommends the Department pursue deployment of these capabilities with urgency. Concurrently, the Commission recommends Congress immediately and consistently fund significant new investments in the defense industrial base, cooperation with the private sector, and expansion of the technical talent pipeline to conduct IAMD research and development, explore the application of emerging technologies, and develop advanced IAMD systems. An additional important recommendation is to have the Secretary of Defense direct research, development, test and evaluation into advanced IAMD capabilities, leveraging all domains, including land, sea, air, and space.

Ms. SEWELL. The Commission found that we need to modernize and expand our global mobility capabilities, especially our fleet of air refueling tankers, to be prepared for the chance of a two-theatre conflict. Can you elaborate on the air refueling tanker needs that the Commission found?

Ms. CREEDON and Senator KYL. The Commission discussed how current plans to modernize and expand the nation's global mobility capabilities, particularly air refueling tankers, are inadequate for a simultaneous two-war conflict. The U.S. ability to rapidly project airpower in two theaters with conventional strike aircraft and dual-capable bombers will fall short in the 2027–2035 timeframe. We found that funding needs to be prioritized and air refueling tanker programs must be accelerated to meet the operational needs of a two-theater conflict. In addition, the Commission has also called for a planned increase in air delivery platforms such as the B–21 and the tankers such an expanded force would require. The Commission assessed the availability and expansion of the tanker fleet as critical to maintaining the deterrent capabilities U.S. strategic posture requires.

Ms. SEWELL. Russia has the largest nuclear force of any state, and since the beginning of its invasion into Ukraine, Putin has threatened its nuclear capabilities

to both compel Ukraine to surrender and halt NATO countries from intervening. The Commission found that "withdrawing from U.S. alliances and partnerships would directly benefit U.S. adversaries, invite aggression that the U.S. might later have to reverse, and ultimately decrease American security and economic propensity." If the U.S. stopped supporting Ukraine at this point in Russia's unprovoked war, what message would that send to Russia? How would that decision embolden U.S. adversaries and hurt American security?

Ms. CREEDON and Senator KYL. It is in the United States' national interest to maintain, strengthen, and expand its network of alliances and partnerships. These relationships, inter alia, strengthen U.S. security by deterring aggression regionally before it can reach the U.S. homeland. U.S. Allies communicated to the Commission their concerns with the renewed Russian aggression against Ukraine and Russian attempts at nuclear coercion to keep Allies from assisting Ukraine. Those Allies emphasized that nuclear coercion must be resisted. The Allies also expressed concern that acquiescing to these nuclear threats may embolden America's nuclear adversaries, which may lead to a miscalculation of U.S. and Allied determination. Consequently, the Commission recommended the Director of National Intelligence direct the development of dynamic assessments to assess the decision calculus of nuclear-armed U.S. adversaries and examine their perceptions of the costs and benefits of nuclear coercion. America's Allies rely on the U.S. strategic posture because it forms an integral component of their defense strategy. As a result, many U.S. Allies perceive no need to develop their own nuclear weapons capabilities, which is in the U.S. national security interest and reduces the risks associated with the proliferation of nuclear weapons. Any significant changes to U.S. strategic posture, policies, or capabilities will have great effect on America's Allies' perceptions and their deterrence and assurance requirements.

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