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REGIONAL NUCLEAR DETERRENCE

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BEFORE THE

SUBCOMMITTEE ON
STRATEGIC FORCES

OF THE

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UNITED STATES SENATE

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TESTIMONY ON REGIONAL NUCLEAR DETERRENCE

TUESDAY, MARCH 28, 2023

UNITED STATES SENATE,
SUBCOMMITTEE ON STRATEGIC FORCES,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The Subcommittee met, pursuant to notice, at 4:52 p.m. in room SR–222, Russell Senate Office Building, Senator Angus King (Chairman of the Subcommittee) presiding.

Committee Members Present: King, Fischer, Cotton, and Tuberville.

OPENING STATEMENT OF SENATOR ANGUS KING

Senator KING. This hearing of the Strategic Forces Subcommittee of the United States Senate Committee on Armed Services will come to order.

I first want to thank our witnesses for joining us at today's hearing on regional nuclear deterrence. Today's hearing may sound somewhat esoteric but it is deadly serious to our national security. We have debated strategic deterrence extensively in this Committee and, in fact, the 2022 Nuclear Posture Review concentrated on our nuclear use policy, modernizing our triad so that we might ensure that we are never coerced by a near peer adversary such as Russia or China.

The question we ask today is about regional nuclear deterrence. In other words, how can we ensure a conventional conflict with a near peer adversary or a conflict between two nuclear-armed adversaries does not resort to the use of nuclear weapons, which then escalates into a broader nuclear exchange? This is the nuclear escalation ladder that theorists have worried about for decades.

Today Ukraine is an example of regional nuclear deterrence. Russia's strategic triad is certainly something that the United States must take account of in terms of its involvement in the conflict. Meanwhile, our extended NATO [North Atlantic Treaty Organization] deterrent has prevented Russia from intervening directly with NATO allies. However, that is not the end of this dilemma.

Russia has a doctrine referred to as "Escalate to Deescalate," which is when they feel that they are in danger of being conventionally overmatched and their country's existence is at stake. It will involve first using low-yield weapons to stun any opponent. Will taking back Crimea trigger this doctrine? Will taking back some of the property, the land that Russia has allegedly annexed trigger this doctrine? We know Russia is running low on conven-

tional munitions. If Russia enters into a conflict with a NATO ally will they quickly resort to low-yield weapons?

I hope today's hearing informs us as to whether our deterrent is appropriately tailored for such a regional conflict. Are we self-deterred with our high-yield arsenal of ICBMs [intercontinental ballistic missile] and SLBMs [submarine launched ballistic missile]? There is a debate about bringing back a low-yield, submarine-launched cruise missile, that which will deter Russia in a regional conflict. Would it deter Russia in a regional conflict? These same questions apply to China and Taiwan, North Korea, South Korea, and Japan.

Today's witnesses have all thought about these questions and many of them have served in Government, enacting policies on this issue. It is important that we hear and learn from them today so that we are better informed as we prepare for our discussions of the National Defense Authorization Act (NDAA) later this spring.

After remarks from Senator Fischer we will have statements from our witnesses and a round of questions from our Senators.

Senator Fischer.

STATEMENT OF SENATOR DEB FISCHER

Senator FISCHER. Thank you, Mr. Chairman, and thank you to all our witnesses for being here today and for sharing your perspective on nuclear strategy and deterrence theory, particularly with respect to the role it plays in regional nuclear stability.

According to the 2022 NPR [Nuclear Posture Review], effective nuclear deterrence, quote, "requires tailor strategies for potential adversaries that reflect our best understanding of their decision-making and perceptions," end quote. The NPR also notes that the United States, quote, "will collaborate with allies and partners to tailor extended deterrence and assurance policies," end quote.

These strategies must be continuously evaluated to ensure they reflect and take into consideration the evolving threat environment. I look forward to hearing your thoughts on effective strategy concepts and how they may impact regional nuclear deterrence.

Thank you very much.

Senator KING. If the witnesses will introduce themselves. I do not know what order you want to proceed. Brad, do you want to start?

STATEMENT OF BRAD ROBERTS, Ph.D., DIRECTOR, CENTER FOR GLOBAL SECURITY RESEARCH, LAWRENCE LIVERMORE NATIONAL LABORATORY

Dr. ROBERTS. Sure. Thank you for the opportunity to join you in this discussion today. I am Dr. Brad Roberts. I am Director of the Center for Global Security Research at Lawrence Livermore National Laboratory. The views I am expressing are my personal views, not those of the lab, and I had the pleasure and honor of serving as Deputy Assistant Secretary of Defense for Nuclear and Missile Defense Policy through the first Obama term.

In my time I would like to make five quick arguments. The first is that we should appreciate that allies are living in the nuclear crosshairs of our nuclear-armed adversaries. Our nuclear-armed adversaries seek to remake the regional orders in which they sit,

and the prize in this competition, and if there were a war, in war, the prize is the allegiance of our allies. They should not be simply an afterthought in our defense strategy. The deterrence protection we provide of them is central to the confrontation in which we are involved today. These allies experience a good deal of anxiety about the life in the nuclear crosshairs and about the credibility of U.S. extended deterrence guarantees to them.

Second argument. In the U.S. discussion of extended deterrence we tend to put our focus on the hardware—dual-capable aircraft, the B–61 bomb, SLCM–N [nuclear-armed sea-launched cruise missile]—all very important, but we should not forget the software. The software includes declaratory policy and other statements of leadership intent. It includes consultations, processes, and mechanisms within the alliance structures. It includes concepts and principles for nuclear deterrence and employment. It includes operational plans and planning processes and exercise programs to exercise those plans. It includes the knowledge base that is essential to all of that. As we consider the weaknesses in the extended deterrence posture we should consider the weaknesses in the software side.

Third argument. The existing extended deterrence posture was designed for an era long past. The existing extended deterrence posture is a result of the Presidential Nuclear Initiatives of the immediate post-cold war period, when the United States withdrew all of its nuclear weapons from Asia, 97 percent of its nuclear weapons from Europe, all of its weapons from naval surface combatants, and all of its nuclear-armed cruise missiles from attack submarines. Most of those things were destroyed. The cruise missiles were kept until 2010, when they aged out.

This was a bet we placed as a Nation that extended deterrence could be provided with a few remaining nuclear weapons in Europe and our central strategic forces. We saw this as appropriate in the benign environment of the time. Russia, China, and North Korea perceived a different security environment, of course, and have been well focused on creating new nuclear advantages for themselves over a long period of time, and theories of victory in conflict with us that involve the coercion of our adversaries and the disruption of our military options by nuclear means.

Our allies are very clear that they want forward-deployed weapons as a part of the extended deterrence commitment, or at least forward deployable in East Asia. Thus, there is a rising discussion of what kind of capabilities the alliances need in future years, whether there is the right diversity in the posture in addition to the right number.

Fourth argument. Looking ahead a decade or so, the challenges facing extended nuclear deterrence seem destined to grow. I think we all expect that when the Ukraine conflict dials back into a frozen conflict the Russia we are going to face for the next decade or so is going to be difficult, threatening, and ever more reliant on nuclear weapons. We clearly expect greater nuclear-backed coercion out of China, as its nuclear arsenal grows and its theater nuclear force grows, and we expect the same from North Korea. There is a mismatch, in other words, between the legacy posture of 1991 and the challenge that is emerging in front of us.

Fifth and finally, strengthening of extended nuclear deterrence has been a clear priority for three Presidential administrations in a row, and the fact of bipartisan consensus on this aspect of our nuclear strategy is striking and should be preserved. That bipartisanship has enabled a good deal of progress in adapting extended deterrence to new circumstances and strengthening it by various means, but more progress is needed. This will not be possible without leadership focus, which has ebbed and flowed, and with that focus I think we will see the accomplishment of various projects that are already underway, such as finalizing the nuclear modernization and strengthening the consultative processes in East Asia. But there are some important new challenges still in front of us about future capabilities and future concepts.

Thanks so much for the opportunity to contribute.

[The prepared statement of Dr. Roberts follows:]

PREPARED STATEMENT BY STATEMENT BY DR. BRAD ROBERTS

Thank you for the opportunity to contribute to your discussion of regional nuclear deterrence. In my judgment, extended deterrence challenges are at the very core of the new deterrence problem. A failure of extended deterrence in Europe or Northeast Asia is the most plausible route to nuclear war, including strategic nuclear war. Those who make nuclear policy are well focused on this fact but many others in the defense department and the broader U.S. defense community are not. More attention is needed to new challenges and to the State of existing capabilities relative to those new challenges. Let me highlight five points for your consideration.

First, our allies and partners are in the nuclear cross-hairs of our adversaries. Russia, China, and North Korea have all developed theories of victory in nuclear-backed confrontation with the United States that target the vulnerabilities of our allies and partners. They use nuclear coercion to try to persuade those allies and partners to influence the United States to be restrained. In crisis, they plan to engage in nuclear blackmail and brinksmanship to try to separate allies from each other and from the United States. For war, they have created an array of nuclear and non-nuclear strategic capabilities to win at the regional level while trying to deter U.S. escalation and using nuclear threats to de-couple the United States from the defense of its allies. Ultimately, the political allegiance and alignment of those allies and partners would be the prize in any such conflict, given the ambitions of these adversaries to re-make the regional security orders without an American presence.

Many allies and partners feel under considerable pressure from these facts. We will soon have two new allies in Europe who have sought membership of NATO in part because of the nuclear threat they face from Russia. Thus, the assurance of these allies and partners has been a steadily rising policy concern. A failure of assurance could prove to be a tipping point in the global nuclear order. The loss of confidence by one ally in the U.S. extended nuclear commitment would likely lead others to conclude that they too can no longer rely on the United States for nuclear protection and must seek nuclear weapons of their own. Alternatively, some allies might reluctantly conclude that appeasement is the better choice. Either choice would be detrimental to U.S. interests.

In this new, more multipolar, and more adversarial security environment, the nuclear protection the United States extends to its allies and partners is much more important than in the so-called unipolar moment.

Second, the U.S. discussion of extended nuclear deterrence tends to focus on the hardware side. It is important to bear in mind as well the software of extended deterrence, as it is integral. The hardware includes:

- Nuclear weapons and dual-capable aircraft (DCA) forward-deployed in Europe as part of NATO's unique nuclear sharing arrangements
- A limited capability to forward deploy DCA elsewhere in the world if needed in time of crisis and war in support of U.S alliance commitments
- U.S. strategic forces, which serve as "the ultimate guarantee" of the safety and security of U.S. allies.

The software includes:

- Declaratory policy

- From the 2022 Nuclear Posture Review: "the fundamental role of nuclear weapons is to deter nuclear attack on the United States, our Allies, and partners. The United States would only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners"

- Supplemental statements of Presidential intent
  - These are generally tailored to specific allies and alliance commitments (as reflected, for example, in summit communiques and the NATO Strategic Concept)
- Consultative mechanisms
  - For example, the NATO Nuclear Planning Group and the Extended Deterrence Dialogue with Japan
- Concepts and principles for the employment of nuclear weapons in war
  - Purpose: "to end any conflict at the lowest level of damage possible on the best achievable terms for the United States and its allies and partners" (2022 NPR)
- Operational plans and the associated planning processes
- The knowledge base to support the development of principles, concepts, and plans
- Exercises that demonstrate commitments, capabilities, and concepts

In examining the health of the extended deterrence enterprise, it is essential to consider both hardware and software.

Third, the existing U.S. posture for extending deterrence to its allies and partners was designed for an era long past. As part of the reciprocal Presidential Nuclear Initiatives of 1991 and 1992, the United States withdrew all of its nuclear weapons from Asia, 97 percent of its nuclear weapons from Europe, and all of its nuclear weapons from naval surface vessels. It also put into storage the nuclear-armed cruise missiles previously deployed on attack submarines, with the promise that such weapons could be redeployed in time of crisis and war, especially in Northeast Asia. [In 2010, the stored cruise missiles aged out and were retired. This resulted in the commitment to make dual-capable fighter-bombers and their bombs available globally.] In the benign security environment of the time, the United States bet that it could meet its extended deterrence requirements primarily with its strategic forces and secondarily with a small number of nuclear weapons and dual capable aircraft forward deployed in Europe.

But leaders in Moscow, Beijing, and Pyongyang did not judge the security environment to be benign. Already in the 1990's, they perceived a growing need to protect themselves from what they believed to be a dangerous America besotted with its power and driven by hegemonic and ideological ambitions. They responded by rethinking modern conflict. All three have developed concepts and plans for crisis, war, and long-term competition with the United States and its allies—which they apparently believe will enable them to break our will, and that of our allies, to resist their ambitions. To enable their new theories of victory, they then set about the task of making the necessary adaptations to their military postures.

One result was an increased emphasis on nuclear weapons by all three and the associated buildup and diversification of their nuclear arsenals. All three have pursued expansion of their strategic systems, which they appear to believe will enhance their flexibility in limited war scenarios. All three have strengthened their regional nuclear forces. One Russian leader has bragged of building "a nuclear scalpel for every military problem in Europe." Analysis by one leading think tank identifies more than 30 different Russian theater nuclear delivery systems. China's leadership has not apparently embraced nuclear weapons in the same way Russia's leadership has, but it too has assembled a theater strike posture composed of many hundreds of missiles capable of delivering both conventional and nuclear weapons. North Korea has also developed and deployed diverse means to deliver nuclear weapons in Northeast Asia.

While Russia, China, and North Korea adapted and expanded their nuclear arsenals to their new purposes, the United States has allowed its nuclear posture to age and contract. For three decades it has maintained its deterrent via a stockpile stewardship program and has extended the life of existing warheads and bombs while foreswearing any new nuclear capabilities. In addition, the arsenal has lost much of the flexibility it once had. For example, of the 21 delivery systems deployed in 1990, only four remain. For the employment of non-strategic weapons, it has only one system (in contrast to the 30-plus deployed by Russia).

The force structure bet placed by the United States in the early 1990's looks less attractive as the security environment has eroded over the last decade. The general U.S. preference to rely primarily on strategic systems for extended deterrence doesn't sit well with many allies. Many European allies highly value the forward presence of United States nuclear weapons, just as allies in Northeast Asia highly value the promise of such a presence in crisis and war. They do so for good reason. Forward-deployed weapons as a tangible display of U.S. nuclear resolve to defend their vital interests. Moreover, the threat to respond to limited regional nuclear employment with a forward-based, low-yield U.S. weapon is generally seen as more credible than the threat to respond to such an attack with U.S. strategic forces, as the latter would seem certain to generate a retaliatory strike onto the American Homeland. The retirement of the forward-deployed and—deployable capabilities, as proposed by some, would send a very unhelpful message at a time when Russia, China, and North Korea are all enhancing their theater nuclear postures.

Thus, there is a strong demand signal from allies for the requisite capabilities. NATO heads of State and government have regularly re-endorsed the sharing arrangements and called for their expansion. The sharing nations have overcome domestic political resistance to pursue modernization of aging delivery systems. Similarly, Japan and South Korea have sought visible and tangible displays of United States intentions and capabilities to re-deploy nuclear weapons into their region on their behalf.

There is, moreover, a rising discussion within U.S. alliances about possible qualitative and quantitative deficiencies in the U.S. nuclear umbrella. The discussion of possible qualitative deficiencies centers on the loss of flexibility as the United States went from many to one means of delivering weapons at the regional level. Some make the case for a new theater-range, dual-capable stand-off penetrating missile. Others make the case for new capabilities that are non-ballistic and low yield. Others make the case for a capability to respond in a nuclear contingency without visible force generation. Some see SLCM–N as the answer; others see different technical solutions.

The discussion of possible quantitative deficiencies centers on the question of whether the number of available theater nuclear systems will be sufficient for a world of deepening major power hostility and growing deterrence challenges at the regional level. The 1991 force sizing construct for extended deterrence simply doesn't fit the world of 2023. Is more capability needed? Yes. How much more? I do not believe that the United States and its allies and partners need a theater nuclear posture that is symmetric to that of their adversaries. But we need some concept for answering the question "how much is enough?" The answer must follow from our strategy and not from the legacy posture.

The software side of the posture needs some more attention as well. A critical shortfall was identified in 2018 by the National Defense Strategy Commission. Concluding that the United States could well lose its next major war, it strongly criticized the then-existing State of U.S. thinking about how to manage the risks of regional conflict with nuclear-armed adversaries. It called for more work to better understand the ways in which U.S. adversaries have prepared for such wars, the risks of both inadvertent and intentional escalation, and how to de-escalate and terminate such wars while avoiding a catastrophic result. The latest National Defense Strategy indicates that some work is now underway on these matters.

In sum, the erosion of deterrence has reached a point where some basic improvements to the overall U.S. extended deterrence posture are warranted, both qualitative and quantitative. The answers of the early 1990's are not sound for 2023. Recognizing the need for improvements is an urgent priority, as doing so can set in motion the analytical and political work to realize such improvements.

Fourth, looking ahead a decade, the challenges facing U.S. extended nuclear deterrence seem destined to grow. Given is experience in Ukraine, Russia can be expected to become more dependent on nuclear threats to NATO, not less. North Korea can be expected to make continued progress in assembling a diverse nuclear force and to become more assertive in challenging the regional security order. A key factor will be China's strategic breakout. While challenging in its own right, the growth and diversification of China's nuclear forces create a new problem for United States nuclear deterrence strategy: contending with concerted action in crisis and war by two nuclear peers while credibly extending nuclear deterrence into two simultaneous regional crises. Against this backdrop, the United States must ask even more of its allies for regional deterrence.

Fifth, the strengthening of extended deterrence has been a clear national priority for three Presidential administrations in a row. This bipartisan consensus is striking and should be preserved. This consensus has made possible a good deal of progress. But progress is not success. Success requires seeing through things al-

ready set in motion. On the hardware side, this includes, for example, timely delivery of promised capabilities (not just F35 and B61 but also B21 and LRSO). On the software side, this includes, for example, strengthening the nuclear consultative processes with Japan and South Korea. Success also requires doing some things that have proven beyond our reach so far. On the hardware side, we must develop a theater force sizing construct that is fit for purpose while also determining how to add some more flexibility back into the posture. On the software side, we must develop our own theories of victory in peacetime conflict, crisis, and war against nuclear-armed adversaries and the associated concepts for escalation, de-escalation, and war termination that integrate conventional and nuclear operations. This further progress will not be possible without continued leadership focus and bipartisan engagement.

Thank you again for the opportunity to contribute these ideas. I look forward to the discussion.

Brad Roberts is director of the Center for Global Security Research at Lawrence Livermore National Laboratory. From 2009 to 2013 he served as deputy assistant secretary of defense for nuclear and missile defense policy. In this capacity, he was head of the U.S. delegation to NATO's nuclear High-Level Group and co-founder of the United States-Japan Extended Deterrence Dialogue and the United States-ROK Extended Deterrence Policy Committee. The views expressed here are his personal views and should not be attributed to his employer or its sponsors.

Senator KING. Thank you very much, Mr. Roberts.

Mr. WEAVER. Dr. Roberts, sorry. Mr. Weaver.

STATEMENT OF GREGORY WEAVER, SENIOR ASSOCIATE [NONRESIDENT], PROJECT ON NUCLEAR ISSUES, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES

Mr. WEAVER. Thanks, Mr. Chairman, Senator Fischer, Senator Cotton, Senator Tuberville. Thanks for the opportunity to participate here. My name is Greg Weaver. Today marks the 1-year anniversary of my retirement from Federal service. My last three positions in Government I was the Chief Nuclear Policy and Strategy Advisor to the Chairman of the Joint Chiefs on the Joint Staff in the J5. I was the Principal Director for Nuclear Missile Defense Policy under Deputy Assistant Secretary Bunn in OSD [Office of the Secretary of Defense] policy. Before that I was the Deputy J5 in United States Strategic Command (STRATCOM) in Omaha.

My comments today also reflect just my personal views.

I want to commend the Subcommittee for focusing on what I think is a particularly important, urgent, and evolving challenge that we need to get on top of. Frankly, I believe improving our ability to deter and counter adversary limited nuclear use in a regional conflict is the single most important challenge we face in U.S. nuclear strategy today, and let me explain why.

It is broadly agreed that the most likely path to limiting nuclear deterrence failure is escalation in the context of major conventional conflict between nuclear-armed adversaries. It is also broadly agreed that the most likely path to a large-scale Homeland nuclear exchange between major powers is escalation from limited nuclear use in the context of such a conflict. Thus, regional nuclear deterrence is the key to addressing the most likely path to nuclear war at any level of violence.

Deterring Russian limited use is our most immediate and challenging regional nuclear problem, although China is rapidly rising in that area. So I am going to focus today on the Russia problem to illustrate the nature of what we are up against.

President Putin's criminal invasion of Ukraine demonstrated both a high propensity to take risk and to miscalculate in the proc-

ess of doing so. Perhaps this propensity to take risk and miscalculate will be alleviated by Putin's eventual departure, but we cannot count on that and we do not know when that will be. The Russian leadership's historical propensity to underestimate NATO's resolve and unity under threat long preceded Putin and will likely survive him.

An effective regional nuclear strategy in Europe must be based, as Senator Fischer pointed out, on an understanding of Russia's nuclear strategy and doctrine. Both are ultimately rooted in the assumption that limited nuclear use in theater is unlikely to escalate to a large-scale Homeland exchange, though I do not believe the Russians are certain that they can avoid uncontrolled escalation.

It is important to understand that Russian conventional and nuclear strategy and doctrine are fully integrated with each other. Their nuclear forces role is to both deter large-scale nuclear attacks on the Russian homeland and to compensate for NATO conventional superiority in two ways. First, through the limited use of nuclear weapons in theater to coerce war termination on terms acceptable to Russia, if possible, but second, to defeat NATO conventional forces through large-scale theater nuclear strikes, if necessary. The latter is what drives Russia's force requirement for thousands of theater nuclear weapons embedded throughout their conventional forces.

What then is required to deter Russian limited nuclear escalation in theater in an ongoing conventional war with NATO? Well, because Russian strategy is based on the belief that mutual deterrence of large-scale Homeland strikes is very robust, we cannot rely solely on the suicidal threat of a large-scale United States nuclear response to limited Russian escalation or on the potential for uncontrolled escalation. Deterrence of Russian limited nuclear use requires the perceived ability of the United States and our NATO allies to persevere in the face of limited nuclear escalation without being politically coerced into accepting Russia's terms and without being decisively militarily disadvantages.

Our longstanding flexible response strategy is, I believe, fit for that purpose but only if it is enabled by U.S. and allied nuclear and conventional forces that are capable of three key things. First, being able to continue to operate effectively to achieve U.S. and allied objectives in a limited nuclear use environment. Second, being able to counter the military impact of Russian theater nuclear use, and third, providing the President a credible range of response options to restore deterrence by convincing Russian leadership they have miscalculated in a dire way, that further use of nuclear weapons will not result in them achieving their objectives, and that they will incur costs in the process that far exceed any benefits they can achieve should they choose to escalate further.

In sum, our capabilities must convince them that nuclear escalation is always their worst option.

Now, for the nuclear capabilities bottom line. To meet these requirements with high confidence we need a range of forward-deployed, survivable theater nuclear capabilities that can reliably penetrate adversary air and missile defenses with a range of explosive yields on operationally relevant timelines—and that is an extensive list of attributes. Based on these attributes, planned U.S.

nuclear capabilities, in my view, are not sufficient for the future threat environment we face. Strategic nuclear forces alone are insufficiently flexible and timely to convince a major power adversary that we are fully prepared to counter limited nuclear use with militarily effective nuclear responses of our own.

Theater nuclear forces are needed for this role, but our planned theater nuclear forces, in my opinion, are too small, insufficiently survivable, and insufficiently militarily relevant. Completing the modernization of our dual-capable fighter aircraft capabilities is necessary, but it is not sufficient.

Our theater nuclear forces can be made a much more credible deterrent without having to match Russia and China weapon-for-weapon by supplementing our dual-capable fighter force with at least one more survivable, forward-deployed, selectable yield delivery system that has a high probability to penetrate adversary defenses. Several candidate systems could meet this requirement, but I assess the SLCM–N, deployed on attack submarines, is the best solution for these reasons. First, it is highly survivable day to day and thus not subject to a preemptive strike. Second, it provides theater nuclear deterrent presence, whether it is actually present or not, because the adversary will not know where those submarines are located. Third, it provides an effective ability to penetrate, in part due to, in some cases, being capable of launching from inside the outer edges of an adversary's integrated air defense system.

Fourth, it provides operationally significant promptness when compared to bomber-delivered, air-launched cruise missiles, it exploits the submarine fleet's large, preexisting launch infrastructure, reducing cost, it has no ballistic missile launch signature that could be misinterpreted by an adversary, and finally, it could leverage the LRSO [long range stand off], air-launched cruise missile modernization program, reducing the impact on our nuclear weapons infrastructure of building an additional theater nuclear capability. No other system I am aware of checks all those boxes.

So in conclusion, and I know I have gone a little long, regional nuclear deterrence is not the place the United States should choose to take risk, and not only because theater deterrence failure is the most likely path to large-scale nuclear war, though that is a pretty good reason in and of itself. An inability to confidently deter or counter adversary limited nuclear use will undermine the credibility of U.S. capability and will to project power against nuclear-armed adversaries in defense of United States and allied vital interests, making major power conventional war more likely in both Europe and Asia. Our allies have not forgotten this and neither should we.

[The prepared statement of Mr. Weaver follows:]

PREPARED STATEMENT BY MR. GREGORY WEAVER

Chairman King, Ranking Member Fischer, and distinguished Members of the Subcommittee, thank you for inviting me to participate in today's hearing. It's an honor to be here. I commend the Subcommittee for focusing on this urgent, important, and evolving challenge.

My comments today are my own and should not be attributed to the Center for Strategic and International Studies.

My colleagues have masterfully addressed the broader political-military aspects of the worsening regional nuclear deterrence problem set we face. I will focus instead on the nature of regional nuclear deterrence dynamics and their impact on U.S. deterrence strategy and requirements. I believe improving our ability to deter and counter adversary limited nuclear use in regional conflicts is the most important challenge we face in U.S. nuclear strategy. Let me explain why.

It is broadly agreed the most likely path to nuclear deterrence failure is escalation in the context of a major conventional conflict between nuclear-armed adversaries. It is also broadly agreed the most likely path to a large-scale homeland nuclear exchange between major powers is escalation from limited nuclear use in the context of a large-scale conventional conflict.

That is where broad consensus ends on how deterrence of limited nuclear use and large-scale escalation are related.

Some analysts and practitioners make two erroneous and dangerous assumptions regarding nuclear deterrence and nuclear escalation. First, they believe it is highly unlikely that nuclear deterrence will fail at any level, and under any circumstances, leading them to conclude that our planned capabilities are more than sufficient to deter limited use under any circumstances. Second, they also believe that if nuclear weapons are used at all, in any number or yield, the war will escalate rapidly out of control to a catastrophic large scale exchange almost automatically.

These assumptions lead them to conclude that all that is needed to deter limited nuclear use is the latent potential for a large-scale U.S. nuclear response, and that our current and planned capabilities are thus more than sufficient to deter limited use under any circumstances.

I think such a strategy is dangerously unsuited for credibly extending nuclear deterrence to U.S. allies because I disagree with both of these assumptions, and so do Russian, and possibly Chinese, strategists.

As we consider how to deter limited nuclear first use we must first ask ourselves this question:

Do we want to base our strategy to deter limited nuclear use on the presupposition that any limited nuclear use will result in uncontrolled escalation, and therefore such limited use won't happen if we rely on that threat? That is not a prophecy we want to become self-fulfilling if deterrence does fail in a limited way. But basing our strategy and force posture on these flawed assumptions risks making it just that.

In my view, central strategic deterrence of large scale homeland exchanges between nuclear-armed great powers is very stable, making limited use unlikely to escalate out of control rapidly. Note, I did not say that limited nuclear escalation cannot or will not escalate out of control. Of course it can, and our deterrence strategy should continue to leverage that risk without relying solely on it.

But the decision to initiate a large-scale nuclear strike on the homeland of a nuclear-armed great power is clearly suicidal as long as both sides retain large-scale survivable second strike capabilities. Thus, leaders are likely to tolerate limited nuclear exchanges without conducting such a large-scale strike on the adversary's homeland. This is not because they want to wage limited nuclear war, but because the alternatives can be summarized as surrender or suicide.

Deterrence is about what an adversary thinks, and how he calculates. There is no area of national security affairs in which the dictum "the adversary gets a vote" is more true. In a deterrence relationship, the adversary doesn't just have "a" vote, they have the only vote. It is our job to decisively influence how they cast it.

Deterring Russian limited use is the most immediate and challenging regional nuclear deterrence problem, so I will use the Russia problem to illustrate what we are up against. Putin's Russia cast their vote in favor of the use of large-scale military force against Ukraine, demonstrating both a high propensity to take risk, and to miscalculate in the process of doing so. That combination of risk-taking and miscalculation is extremely troubling, especially when paired with Russia's repeated brandishing of nuclear threats.

Perhaps this dangerous propensity to take risk and miscalculate will be alleviated by Putin's eventual departure. But we can't count on that, and we don't know when that will be in any case. The Russian leadership's historical propensity to profoundly and repeatedly underestimate NATO's resolve and political unity under threat long preceded Putin, and will likely survive him, even if Russia's risk-taking propensity lessens somewhat in a post-Putin era.

The dismal performance of Russian conventional forces in Ukraine is likely to lead them to further increase their reliance on nuclear weapons. This means that in a future war with NATO they could perceive the need to use nuclear weapons earlier in the conflict. If true, this means that once Russia reconstitutes its conventional

forces, deterring Russian limited nuclear use will become even more important to deterring Russian conventional aggression than before Ukraine.

To formulate an effective regional nuclear deterrence strategy in Europe we must closely examine Russia's nuclear strategy and doctrine. Both are ultimately rooted in the assumption that limited nuclear use in theater is unlikely to escalate to a large scale homeland exchange, though I do not believe the Russians are certain they can avoid uncontrolled escalation. Based on the scope and content of China's ongoing nuclear buildup, their strategy and doctrine may be evolving based on this perception as well.

Russian conventional and nuclear strategy and doctrine are fully integrated. Their nuclear forces' role is to both deter large scale nuclear attacks on the Russian homeland and compensate for NATO conventional superiority through the limited use of nuclear weapons in theater through coercion if possible, but through defeat if necessary.

The coercive escalation option is to initiate limited first use of nuclear weapons to compel termination of an ongoing conventional war on terms acceptable to Russia.

The defeat escalation option is to conduct large-scale theater nuclear operations against NATO's conventional forces if the Russian leadership assesses they pose a threat to "the very existence of the Russian state". This option is what drives Russia's force requirement for thousands of theater nuclear weapons embedded throughout their conventional forces.

What, then, is required to deter Russian limited nuclear escalation in theater given their strategy and doctrine, their demonstrated propensity to take the risk of invading their neighbors, and their track record of miscalculating regarding NATO's will and cohesion?

Given that Russian strategy is based on the belief that mutual strategic deterrence of large-scale homeland strikes is very robust, deterrence of limited nuclear use requires the perceived ability of the U.S. and our NATO allies to persevere in the face of Russian limited escalation without being politically coerced into accepting war termination on Russia's terms, and without being decisively militarily disadvantaged. That requires a set of U.S. nuclear capabilities that are militarily relevant in such a conflict. Russian theater nuclear capabilities are designed to be just that: *militarily relevant* in a limited nuclear war. The evolution of Chinese theater nuclear capabilities seems to indicate they understand this as well.

In my view the core requirement for deterring Russian limited nuclear escalation in a war with NATO is a Flexible Response strategy that credibly convinces the Russian leadership that limited nuclear escalation does not provide effective insurance against miscalculating about NATO's resolve and cohesion, will not result in war termination on their terms, and does indeed run the risk of uncontrolled escalation because the United States and our Allies are visibly prepared for what Schelling called a "competition in risk-taking" to defend our vital interests.

Such a strategy must be enabled by U.S. and Allied nuclear and conventional forces that are capable of three key things:

1. Providing a robust range of response options to restore deterrence by convincing Russian leadership they have miscalculated in a dire way, that further use of nuclear weapons will not achieve their objectives, and that they will incur costs that far exceed any benefits they can achieve.
2. Countering the military impact of Russian theater nuclear use.
3. Continuing to operate effectively to achieve U.S. and Allied objectives in a limited nuclear use environment.

In sum, our strategy and capabilities must convince them with high confidence that nuclear escalation is always their worst option. And while there remains uncertainty about whether China's nuclear strategy and doctrine are shifting to match the comprehensive nuclear buildup they are undertaking, we are likely to need to be able to do the same in the Asia-Pacific theater.

Now for the nuclear capabilities bottom line: to meet the requirements for deterring limited nuclear use with high confidence we need a range of forward deployed, survivable theater nuclear capabilities that can reliably penetrate adversary theater air and missile defenses with a range of explosive yields and on operationally relevant delivery timelines. Based on these attributes, I do not believe that planned U.S. nuclear capabilities are sufficient for the future threat environment we face.

Strategic nuclear forces alone are insufficiently flexible and timely to convince a major power adversary that we are fully prepared to counter limited nuclear first use with militarily effective nuclear responses of our own. Given Russian strategy, doctrine, and capabilities, theater nuclear capabilities are required.

Completing the modernization of our dual capable fighter aircraft capabilities is necessary, but not sufficient. Our planned theater nuclear forces are too small, in-

sufficiently survivable, and insufficiently militarily relevant. But they could be improved to be a much more credible deterrent to limited nuclear use without having to match Russia and China weapon for weapon.

We should supplement dual capable fighter modernization with at least one more survivable, forward deployed, selectable yield delivery system with a higher probability to penetrate advanced defenses. There are several candidates that could meet this requirement, but I assess that SLCM–N deployed on attack submarines is the best solution for the following reasons:

It is highly survivable day-to-day, and thus not subject to preemptive strike.

It provides theater nuclear deterrent presence, whether it is actually present or not.

It provides an effective ability to penetrate, in part due to in some instances being capable of launch from inside the outer edges of an adversary's integrated air defenses.

It provides operationally significant promptness when compared to bomber-delivered ALCMs.

It exploits the attack submarine fleet's large pre-existing launcher infrastructure, reducing cost.

It has no ballistic missile launch signature that could be misinterpreted by an adversary.

It could leverage the LRSO program, reducing the impact on our nuclear weapons enterprise.

No other system I am aware of checks all those boxes.

In conclusion, regional nuclear deterrence is not the place the U.S. should choose to take risk, and not only because theater deterrence failure is the most likely path to large scale nuclear war that poses an existential threat to the United States, though that is a pretty good reason in and of itself. An inability to confidently deter or counter limited theater nuclear use will undermine the credibility of U.S. capability and willingness to decisively project power against a nuclear-armed adversary in defense of U.S. and Allied vital interests. Our Allies have not forgotten this. Neither should we.

Senator KING. Thank you very much. Compelling testimony. I appreciate it.

Ms. BUNN.

STATEMENT OF M. ELAINE BUNN, SENIOR ADVISOR [NONRESIDENT], PROJECT ON NUCLEAR ISSUES, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES

Ms. BUNN. Thank you, Chairman King and Ranking Member Fischer, and other Subcommittee Members for the invitation. It really is a pleasure to testify before you again, but this time as a private citizen representing only myself and not as a United States Government (USG) official. I spent 40 years in Government, mainly at Department of Defense. My last job there was as Deputy Assistant Secretary for Nuclear and Missile Defense Policy, following Brad, in 2013 to 2017.

Senator KING. Did you say 40 years?

Ms. BUNN. Forty years. Forty.

Senator KING. You were hired as a child?

Ms. BUNN. I just had my 70th birthday. That is on the record.

I also, in that National Association of Securities Dealers (NASD) job, as did Brad, spend a lot of time with allies, both as the U.S. Representative to the High Level Group of NATO as well as cochairing the deterrence dialogs with Japan and South Korea.

The United States has made very explicit extended nuclear deterrence commitments to more than 30 countries, NATO countries as well as Japan, South Korea, and Australia. In so doing, the United States has privately and publicly affirmed that aggression against those countries could, under some circumstances, merit a U.S. nuclear response.

I have come to believe that extended deterrence is amazing from both sides. We have our non-nuclear allies, who have foresworn their own nuclear weapons and rely on another country, the U.S., in high-end situations, including nuclear attacks on their own territory and people. It is amazing that the U.S. takes on the risk and responsibility of putting its own forces, even its population and territory, at risk on behalf of an ally. That is an amazing fact to the point that some, in the past, have found it incredible. That is the reason we have an independent French nuclear force.

It should be no surprise that our non-nuclear allies need to constant reassurance that they are very interested in how we think about deterrence, how we might respond. It is not amazing that they need that constant interaction to feel secure.

In January, South Korean President Yoon speculated publicly that if North Korean provocations increased, South Korea might consider building its own nuclear weapons or maybe asking the United States to deploy tactical nuclear weapons to the South, as it did before 1991. Although President Yoon later stressed that his comments did not represent official policy, they were still significant, marking the first time since the 1970's that a South Korean President has raised the prospect of acquiring nuclear weapons.

Do President Yoon's comments indicate that some in South Korea are concerned about the credibility of the United States extended nuclear deterrence commitment? I think so. While I am not worried about non-nuclear allies deciding to have their own nuclear weapons in the very near term, I can see it happening, 5, 10, 15 years from now, with South Korea probably the first among them.

United States will has long been the underlying concern for allies. They know we have weapons, but would we use them? It is not "could we" but "would we." I think it consultations at multiple levels, real ones, where we listen as well as talk, where we have exercises, both tabletop and field exercises, where we have forward deployments of conventional and sometimes nuclear forces. All of those things say that we have a stake in and will take risk for allies' security.

If South Korea, or another ally, does ask for deployment of United States nuclear weapons on their territory, or nuclear sharing arrangements, dual-capable aircraft and the B–61 bombs, as in NATO, or offshore SLCM–N, which I have not heard allies discussing much, but if allies raise any of these hardware issues I think the U.S. should be willing to have frank discussions about their view and be open to talks on the plusses and minuses of what allies believe they need and not simply give a kneejerk "no."

There are things we can do short of deploying nuclear forces in allied countries. For example, the last three Nuclear Posture Reviews have all said that the United States maintains globally deployable, dual-capable aircraft, primarily to assure Northeast Asian allies. But we have not demonstrated that capability with exercises. That should be an easy one to do.

In any event, with or without forward-deployed nuclear weapons there is a need for ongoing consultations that are deep and nuanced, more realistic exercises, and greater allied integration in operational planning.

Thank you.

Senator KING. Thank you very much.
Dr. Montgomery.

STATEMENT OF EVAN B. MONTGOMERY, Ph.D., SENIOR FELLOW AND DIRECTOR, RESEARCH STUDIES, CENTER FOR STRATEGIC AND BUDGETARY ASSESSMENTS

Dr. MONTGOMERY. Thank you, Chairman King, Ranking Member Fischer. I appreciate the opportunity to be here today and share my thoughts with you. I would like to focus my remarks on the potential consequences of China's nuclear modernization.

For more than a decade, China's conventional military modernization has been upending the balance of power in the Indo-Pacific region. Until recently, though, China's nuclear arsenal has been a secondary concern. The situation is starting to change now that China is engaged in a significant quantitative and qualitative nuclear buildup. This nuclear buildup could be destabilizing both regionally and globally, and I would like to highlight three areas of concern that have been raised to date.

The first is the possibility that China could pose a future first-strike threat against United States strategic forces. This previously implausible scenario could become a genuine concern if Beijing fields accurate and difficult-to-detect system that could threaten United States command and control targets, as well as large numbers of ICBMs that could threaten U.S. strategic delivery systems.

Thankfully, the likelihood of this scenarios is extraordinarily low because the demands of a successful first strike are so extraordinarily high. Nevertheless, if China's nuclear buildup unfolds in the way that many now anticipate, it cannot be discounted entirely, especially if United States officials take into account the combined nuclear forces of Russia and China in their calculations, as they should.

The second area of concern is the possibility that China's nuclear buildup could embolden Beijing to start a conventional conflict against the United States. From China's perspective, a larger and more survivable strategic deterrent could ensure that any fight between the United States and China does not escalate and remains at the conventional level, a prospect that might actually benefit China given its conventional military modernization.

This situation is certainly a far more plausible risk than the threat of a first strike. Nevertheless, China would still need to be confident that it could suppress Taiwan and succeed in a clash with the United States, two very costly courses of action no matter how many improvements the People's Liberation Army (PLA) makes.

The third area of concern associated with China's nuclear buildup, and I think the one that is likely to be the most serious over the long run, is the possibility that China could build the tools to make limited nuclear threats. For instance, China could soon be equipped with multiple, highly accurate theater nuclear options, enabling it to hold many regional targets at risk with low-yield nuclear weapons. These capabilities are especially worrisome because they could serve as the foundation for an alternative coercive strategy against Taiwan, one that might look easier, faster, and cheaper than, for example, launching a direct invasion of the island and

embarking on a large-scale conventional war against the United States.

Specifically, if Beijing paired limited nuclear threats with, for example, blockade operations against the island and attacks against leadership targets, it would pose major dilemmas for the United States as it determined whether and how to intervene.

In sum, the nuclear buildup that China has embarked upon could have significant consequences. Although it has received less attention than the expansion of its strategic forces, a potential buildout of China's theater nuclear capabilities could have major implications for the United States, and here I will briefly highlight three.

The first implication is for U.S. nuclear force structure. For years, the United States has been concerned about the imbalance in non-strategic nuclear weapons between itself and Russia. Yet there might be a similar imbalance on the horizon with respect to China. If Beijing fields a variety of nuclear-armed theater missile systems, the United States may not have symmetrical, proportional, effective, and credible responses in hand. That dilemma could become especially sharp if Washington's relatively small inventory of non-strategic nuclear weapons is needed to deter limited nuclear threats by two major power adversaries at the same time.

The second implication is for U.S. extended nuclear deterrence arrangements. Theater nuclear forces could enable Beijing to drive wedges between the United States and its allies and partners. In other words, Washington could face dilemmas similar to those that it confronted during the cold war when Soviet investments in theater nuclear systems that could target European allies without striking the United States Homeland raised decoupling concerns that required skillful alliance management to address. If so, the United States might need to consider binding itself and its allies more tightly together, for instance, by pursuing nuclear sharing arrangements with Japan and South Korea, not unlike those that exist with select NATO allies.

The third and final implication is a broader one for United States defense planning, namely that China's nuclear buildup will require the United States to prepare for a wider range of threats. To date, the Department of Defense, in particular, is focused on the challenges posed by a PLA air and amphibious assault against Taiwan as well as PLA attacks against United States ports, forward-operating forces, air bases, and information networks. China's nuclear buildup could open up new avenues of coercion against Taiwan, some of which, like the early resort to limited nuclear threats in lieu of invasion, could seem appealing to leaders in Beijing while posing considerable difficulties for policymakers in Washington.

Thank you for your time. I look forward to your questions.

[The prepared statement of Dr. Montgomery follows:]

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Center for Strategic and Budgetary Assessments

TESTIMONY

STRATEGIC FORCES SUBCOMMITTEE OF THE SENATE ARMED SERVICES COMMITTEE HEARING ON REGIONAL NUCLEAR DETERRENCE

28 March 2023

Statement by Dr. Evan Braden Montgomery
Senior Fellow and Director of Research and Studies
Center for Strategic and Budgetary Assessments

Chairman King, Ranking Member Fischer, and distinguished members of the subcommittee: thank you for the opportunity to participate in this hearing and share my thoughts on regional nuclear deterrence. Specifically, I would like to focus my remarks on the potential consequences of China's nuclear modernization, which could have enormous implications for strategic stability between the major powers, extended deterrence commitments to U.S. allies, and the character of threats to frontline states like Taiwan.

Background

For more than a decade, China's conventional military modernization has been upending the balance of power across the Indo-Pacific region. The People's Liberation Army (PLA) has been developing and fielding a variety of capabilities—combat aircraft, surface naval assets, submarines, and ballistic and cruise missiles, among others—that seriously threaten its neighbors and could be used to target U.S. bases, ports, and forward-operating forces. This shift in the balance of power has raised questions about Washington's ability to deter the use of force against its allies and partners, as well as its capacity to defeat an assault if deterrence were to fail.[1]

[1] See, for example, Evan Braden Montgomery, "Contested Primacy in the Western Pacific: China's Rise and the Future of U.S. Power Projection," *International Security* 38, no. 4 (2014); Eric Heginbotham et al., *The U.S.–China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017* (Santa Monica, CA: RAND Corporation, 2015); Toshi Yoshihara and James R. Holmes, *Red Star over the Pacific: China's Rise and the Challenge to U.S. Maritime Strategy*, 2nd ed. (Annapolis, MD: Naval Institute Press, 2018); and Eric Edelman and Gary Roughead, Co-Chairs, *Providing for the Common Defense: The Assessment and Recommendations of the National Defense Strategy Commission* (Washington, DC: United States Institute of Peace Press, 2018), 14.

Until recently, China's nuclear arsenal was a secondary concern. This so-called "minimum deterrent" remained far smaller than either the U.S. or Russian arsenals, appeared to be sized and postured for retaliatory strikes in extreme circumstances, and often received more attention for its apparent vulnerability than its actual strength. That situation, however, is starting to change.

It now appears that China is engaged in a significant quantitative and qualitative nuclear buildup. Beijing has been constructing hundreds of new intercontinental ballistic missile (ICBM) silos; it has tested a fractional orbital bombardment system (FOBS) armed with a hypersonic glide vehicle (HGV); it has introduced a dual-capable intermediate-range ballistic missile (IRBM) capable of precision strikes; and, according to the Department of Defense, it is in the process of expanding its arsenal from more than 400 operational warheads today to 1500 total warheads by 2035.[2]

Assuming this buildup materializes in full, it would be the catalyst for a major change in the security environment. As the 2022 National Security Strategy notes, "By the 2030s, the United States for the first time will need to deter two major nuclear powers, each of whom will field modern and diverse global and regional nuclear forces."[3]

The Meaning of China's Nuclear Modernization

China's nuclear buildup could be destabilizing—both regionally and globally—in a variety of ways. Below, I outline three specific areas of concern.

Strategic First Strike

Once China possesses a much larger stockpile of nuclear weapons and a much more diverse array of delivery systems, U.S. officials may need to consider a scenario that was previously implausible: a Chinese first strike against U.S. strategic forces. For instance, accurate and difficult-to-detect systems like China's HGV-equipped FOBS raise the specter of decapitating attacks against U.S. command-and-control targets. Meanwhile, large numbers of silo-based ICBMs, especially ICBMs equipped with multiple independently targetable reentry vehicles (MIRVs), could pose a disarming threat against U.S. ICBMs, as well as any ballistic missile submarines (SSBNs) in port and strategic bomber forces that have not been generated.

Thankfully, the likelihood of this scenario is extraordinarily low because the demands of a successful first strike are so extraordinarily high. Nevertheless, if China's arsenal reaches the point that it can pose credible decapitating *and* disarming threats (the combination of which is required for a genuine first strike capability), it cannot be

[2] Office of the Secretary of Defense, *Military and Security Developments Involving the People's Republic of China 2022* (Washington, DC: Department of Defense), 94.

[3] The White House, *National Security Strategy* (October 2022), p. 21.

discounted entirely—especially if U.S. officials take into account the combined nuclear forces of China and Russia.[4]

Conventional Backstop

The most common explanation for China's nuclear buildup is that it is designed to neutralize the prospect of U.S. nuclear coercion in a regional crisis and ensure that any fight between the United States and China remains at the conventional level. [5] This view rests on the logic of the stability-instability paradox—the situation in which a low probability of a strategic nuclear exchange due to mutual vulnerability raises the probability of conventional conflict due to a hard ceiling on escalation.[6] From Beijing's perspective, therefore, a larger and more survivable strategic deterrent could make a conventional campaign against Washington more tempting because escalation to nuclear use would be less concerning. Under these conditions, the two sides could clash at the conventional level alone—a prospect that might benefit China given the geographic, technical, and operational military advantages it has been working hard to leverage or create.[7]

This situation is certainly a far more plausible risk than the threat of a first strike. Nevertheless, China would still need to be confident that it could suppress Taiwan and succeed in a clash with the United States—two very costly courses of action no matter how many improvements the PLA makes.

Theater Nuclear Threats

Perhaps the biggest risk of China's nuclear buildup, at least over the long run, is the possibility that it could build the tools to make limited nuclear threats, which could strain US extended deterrence commitments and isolate potential targets of aggression like Taiwan.[8] According to the 2022 Nuclear Posture Review, "The range of nuclear options available to the PRC leadership will expand in the years ahead, allowing it to potentially adopt a broader range of strategies to achieve its objectives, to include

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[4] Evan Braden Montgomery, "Posturing for Great Power Competition: Identifying Coercion Problems in U.S. Nuclear Policy," *Journal of Strategic Studies* 45, No. 6/7 (2022).

[5] Gerald C. Brown, "Understanding the Risks and Realities of China's Nuclear Forces," *Arms Control Today*, June 2021, https://www.armscontrol.org/act/2021-06/features/understanding-risks-realities-chinas-nuclear-forces.

[6] Glenn Snyder, 'The Balance of Power and the Balance of Terror', in Paul Seadbury, ed., *Balance of Power* (San Francisco, CA: Chandler Publishing, 1965).

[7] Caitlin Talmadge, "China and Nuclear Weapons," *Brookings Institution*, September 2019, 7, https://www.brookings.edu/wp-content/uploads/2019/09/FP_20190930_china_nuclear_weapons_talmadge-1.pdf.

[8] See Evan Braden Montgomery and Toshi Yoshihara, "The Real Challenge of China's Nuclear Modernization, *The Washington Quarterly* 45, No. 4 (Winter 2023).

nuclear coercion and limited nuclear first use."[9] For instance, China could soon be equipped with multiple, highly accurate theater nuclear options, potentially including the DF-21 and DF-26, enabling it to hold many regional targets at risk. Meanwhile, the newly deployed DF-17 medium-range ballistic missile (MRBM) carries an HGV and, according to some reports, might also be capable of delivering nuclear weapons.[10]

These capabilities are especially worrisome because they could serve as the foundation for an alternative coercive strategy against Taiwan, one that might look easier, faster, and cheaper than launching a direct invasion of the island and embarking on a large-scale conventional war against the United States. Specifically, if Beijing paired limited nuclear threats with, for example, blockade operations against the island and attacks against its leaders, this would pose major dilemmas for the United States as it determined whether and how to intervene.[11]

Responding to China's Buildup

The nuclear buildup that China has embarked upon will have significant consequences for the security environment across the Indo-Pacific region and beyond. Below, I address some specific implications of a potential theater nuclear buildup on Beijing's part, which has received less attention than the expansion of its strategic forces, but which could require Washington to reconsider the nuclear forces that it requires, the extended deterrence arrangements that it maintains, and the contingencies that it plans for.

Implications for U.S. Nuclear Force Structure

For years, the United States has been concerned about the imbalance in non-strategic nuclear weapons between itself and Russia. Whereas Moscow maintains a diverse arsenal of approximately 2000 non-strategic nuclear weapons and continues to modernize these forces, Washington has a far smaller inventory of non-strategic capabilities.[12] This imbalance has led to concerns about gaps in the so-called escalation ladder that could embolden Russia to levy nuclear threats during a crisis, or even resort to limited nuclear use. It also spurred a decision in the 2018 Nuclear Posture Review to begin investing in supplemental non-strategic nuclear weapons, namely the W76-2 submarine-launched ballistic missile warhead and a nuclear-armed, submarine-

[9] Department of Defense, *2022 Nuclear Posture Review* (Washington, DC: Department of Defense, 2022), 11.

[10] Hans M. Kristensen and Matt Korda, "Chinese Nuclear Weapons, 2021," *Bulletin of the Atomic Scientists* 77, no. 6 (2021), pp. 320, 328.

[11] Evan Montgomery and Toshi Yoshihara, "Leaderless, Cut Off, and Alone: The Risks to Taiwan in the Wake of Ukraine," *War on the Rocks*, April 5, 2022, https://warontherocks.com/2022/04/leaderless-cut-off-and-alone-the-risks-to-taiwan-in-the-wake-of-ukraine/.

[12] Hans M. Kristensen and Matt Korda, "Russia Nuclear Weapons, 2022," *Bulletin of the Atomic Scientists*, 78, No. 2 (2022).

launched cruise missile. Yet there might be a similar imbalance on the horizon with respect to China.

If Beijing fields a variety of nuclear-armed theater missile systems, the United States might not have symmetrical, proportional, effective, and credible responses. That, in turn, could leave policymakers in Washington with the choice of responding with conventional forces alone, which might be insufficient under the circumstances, or responding with strategic forces, which might be imprudent given China's ability to retaliate in kind. This dilemma could become especially sharp as Washington's relatively small inventory of non-strategic nuclear weapons would be needed to deter limited nuclear threats by two major power adversaries at the same time.

Implications for Extended Deterrence Arrangements

Theater nuclear forces could also enable Beijing to drive wedges between the United States and its allies and partners.[13] In other words, Washington could face dilemmas similar to those it confronted during the Cold War, when Soviet investments in theater nuclear systems that could target European allies without striking the U.S. homeland raised "decoupling" concerns that required skillful alliance management to address.[14] If so, the United States might need to consider binding itself and its allies more tightly together—especially if those allies seriously consider the prospect of acquiring independent nuclear capabilities in response to growing threats from China and growing doubts about U.S. extended deterrence commitments.

For instance, United States could pursue bilateral nuclear sharing arrangements with Japan and South Korea, not unlike those that exist with select NATO allies. This type of agreement would entail the United States maintaining custody of nuclear weapons and authority over their release, but allied forces being prepared to participate in the nuclear delivery mission.[15]

Implications for U.S. Defense Planning

Lastly, given China's nuclear buildup, the United States will need to be prepared for a wider range of threats. To date, the Department of Defense in particular has focused on the challenges posed by a PLA air and amphibious assault against Taiwan, as well as PLA attacks against U.S. ports, bases, forward-operating forces, and information networks. This is understandable given the character of China's military buildup, the consequences

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[13] Thomas G. Mahnken, Gillian Evans, Toshi Yoshihara, Eric S. Edelman, and Jack Bianchi, *Understanding Strategic Interaction in the Second Nuclear Age* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2019), pp. 79–81.

[14] Eric Edelman, Josh Chang, and Tyler Hacker, *Arming America's Allies: Historical Lessons for Implementing a Post-INF Treaty Missile Strategy* (Washington, DC: Center for Strategic and Budgetary Assessments, 2022).

[15] Evan Montgomery, *Extended Deterrence in the Second Nuclear Age: Geopolitics, Proliferation and the Future of U.S. Security Commitments* (Washington, DC: Center for Strategic and Budgetary Assessments, 2016), 33-35.

of these threats for regional security, and their implications for U.S. defense strategy and defense spending. Yet China's nuclear buildup could open up new avenues of coercion against Taiwan, some of which—like the early resort to limited nuclear threats in lieu of invasion—could appear appealing to leaders in Beijing while posing considerable difficulties for policymakers in Washington.

About the Center for Strategic and Budgetary Assessments

The Center for Strategic and Budgetary Assessments (CSBA) is an independent, nonpartisan policy research institute established to promote innovative thinking and debate about national security strategy and investment options. CSBA's analysis focuses on key questions related to existing and emerging threats to U.S. national security, and its goal is to enable policymakers to make informed decisions on matters of strategy, security policy, and resource allocation.

Senator KING. I want to thank all of our witnesses. This has been amazingly provocative and thoughtful and information, so I want to thank you.

It seems to me—I mean, I think of the formula for deterrence as will plus capacity, and will is a hard thing to measure and quantify. I think you testified about the software of nuclear deterrence, and statements, policies, doctrines are important. Capacity, though, is something that can be measured, and I think all of you—well, I will ask—do any of you disagree with the proposition that we do not have sufficient low-level, regional deterrent capacity while we are deployed? Does anybody disagree with that?

Mr. WEAVER. Senator, I not only agree with it, I also think that if we were to take steps to correct that——

Senator KING. I think your mic is not on.

Mr. WEAVER. Yes. I not only do not disagree with that, I think that if we were to take steps to correct that problem, to actually bolster our theater nuclear capabilities, it would actually help work part of the software problem, which is we would be demonstrating that we have the will to address this problem, even though it is politically fraught, potentially, in our alliances.

Senator KING. Believe it or not, I wrote my senior thesis on this subject. I will not tell you how many years ago it was, but Admiral Roberts at STRATCOM tried his best to get naval intelligence to find it, but I could not find it.

But it seems to me that the strategic dilemma is that if all we have is massive retaliation, it is not credible that we would use that in case of a tactical use in Ukraine or Southeast Asia or Northeast Asia. So that is really the dilemma.

I will ask the question I know you are going to ask. SLCM–N is not funded in the current budget. It was funded for R&D [research and development] last year. This year it is zero. Is that not correct? But, Mr. Weaver, you testified that you thought that was the most logical forward deployed, and you gave five reasons why. I do not mean to have you repeat your testimony but I am a little puzzled why that is not in the budget.

Mr. WEAVER. Well, Senator, I was involved in the 2018 Nuclear Posture Review that recommended it and the Joint Staff, and I was also involved in the 2022 Posture Review with the administration decided not to do it. As you know, the Chairman recommended SLCM–N.

There are, as I said in my statement, there are other theater nuclear options we could pursue. We could build mobile, land-based systems. But when you take the full look at the set of attributes that most address the nature of our theater deterrence problem, in both Europe and Asia, I believe SLCM–N is the best option we have readily available. Now if you want to invent something completely new and have it take longer to get—and we do not have much time——

Senator KING. We do not need to invent a platform. We have the platform.

Mr. WEAVER. Exactly, and we have the platform already.

Senator KING. Dr. Roberts, do you agree with this line of discussion?

Dr. ROBERTS. I do. We have just concluded—three of the four of us just concluded a study group report on dealing with the emergence of a second nuclear peer, and its implications of two nuclear peers for our nuclear strategy, a bipartisan group, and we have a strong endorsement for SLCM–N in the report.

Senator KING. Well, another danger, other than the weakness of the deterrent, it seems to me, is an incentive to our allies to develop their own nuclear capability. As you suggested, the President of South Korea sort of speculated on that some time ago. But at some point they are going to say, "Well, if we cannot rely on a reliable, credible deterrent, we have got to develop our own capacity." In a sense, our extended deterrent, it seems to me, is a proxy for those other countries developing their own capability, which, from a proliferation point of view, is a good thing. Ms. Bunn?

Ms. BUNN. I am one who has reluctantly come to the conclusion that we do need a TLAM–N [Nuclear-armed Tomahawk Land Attack Missile] in this discussion group that we are talking about. I am sorry, SLCM–N. Did I say TLAM–N? SLCM–N. Many battles in my career over TLAM–N, and why was I reluctant? Because SSNs [nuclear-powered attack submarines] do have many missions, and I also fought many battles with the Navy. I am just not sure the Navy will ever fully support this because we fought many battles trying to keep TLAM–N in the force before it was retired.

So that was my reluctance. But I do think that we need it for—if we decide, if the U.S. decides we need it for deterring and responding to limited use, then we should go forward with it. We should fund it. Right now I do not think we can pin it on allies are asking for it. I have not heard a lot of allies talking about it specifically. Usually in conference if it is raised, it is raised by Americans. But I suspect they do not want to get in the middle of a policy debate in the U.S.

Senator KING. But they want the extended deterrence.

Ms. BUNN. They want capabilities. If they are concerned that either adversaries do not think we would use the capabilities we have now because they are not appropriate—they are too high yield, they cannot get through, various reasons we would not use those—then they have good analysts. They want us to have something that we can see actually, that our adversaries could see us actually employing. If they do not think you would ever use it, then it does not deter.

Senator KING. Well, I am over my time. I want to turn it over to Senator Fischer. But the whole point here is to never have these weapons used, and we do not want an adversary to think that they can use a low-level weapon and pay no significant price, which gets us to the place where we are in a nuclear confrontation.

Senator FISCHER.

Senator FISCHER. Thank you, Senator King.

On Saturday, March 25th, President Putin, he announced that Russia is going to station tactical nuclear weapons in Belarus, and he also informed us that an agreement had been made with Belarus to equip 10 of the Belarusian aircraft with tactical nuclear weapons, along with their Iskander mobile short-range ballistic missile system. It was fascinating, I thought, that he did this. Ob-

viously, I got a very strong message that he would do this, first of all, take the action, and second, tell us what he did.

Mr. Weaver, let us start with you. How do you think that this action is going to change the nuclear deterrence dynamic that we see in Europe right now?

Mr. WEAVER. So, Senator, I do not believe Russian deployment of some of their non-strategic capabilities to Belarus changes the military equation in Europe at all. It is a political move. The Russians have long complained that we have nuclear weapons forward based in Europe on the territory of our allies and that we have nuclear sharing arrangements with them.

Senator FISCHER. They made it clear. This was not for Belarus to use. It was for Belarus to use for Russia.

Mr. WEAVER. Right. But the Russians have somewhere between 1,500 and 2,000 non-strategic nuclear weapons today. They are embedded throughout their conventional forces across the Russian Federation. Moving a few of them forward now into Belarus really does not change the military equation. They range anybody in NATO that they want to with the existing systems they have, including the SSC–8 ground-launched cruise missile that has a range of about 2,000 kilometers, that violated the intermediate range nuclear forces (INF) Treaty and led to our withdrawal.

So they can threaten NATO throughout its depth, and they have always had the ability to move Russian forces forward into Belarus in the event of a conflict, in any event. So I do not think it changes the military equation but it is a political signal.

Senator FISCHER. Dr. Roberts and Ms. Bunn, do you agree with that?

Ms. BUNN. Yes, I would agree with that. It will be interesting. The Russians, and now the Chinese in NPT [Treaty on the Non-Proliferation of Nuclear Weapons] meetings have complained about NATO nuclear sharing, and I do not know if this will change their rhetoric on that at all. Probably not.

Senator FISCHER. Dr. Roberts, anything to add on that?

Dr. ROBERTS. Same essential view. The Russian military strategy for local war, which is what it claims to be fighting, as opposed to a regional war against a large coalition, that strategy is in part about keeping it local, keeping the outsiders out, casting a long shadow, making us fearful that if we engage we will pay a terrible price. President Putin has to keep beating that drum one way or another. I think this is just one more sign of his effort to alarm us, but it does not change the military equation.

Senator FISCHER. Dr. Roberts, between recent news of Russia's noncompliance with the New START [Strategic Arms Reduction] Treaty, China's modernization rate, and North Korea's daily shows of force, we also see Iran's nuclear weaponization capability. How should the U.S. focus our regional nuclear strategy? If we are talking about regions, how do we focus that?

Dr. ROBERTS. Well, I do not think we have the luxury of prioritizing. One of the big questions in the two peer study was do you prioritize one over the other, or the first contingency over the possible second one? Our conclusion was, we cannot afford to do that. Too much risk. It is giving a green light to aggression in the area you have not prioritized.

My take on this is that the complex landscape you describe renders essentially out of date the bet we placed in 1991, the bet that we could do regional deterrence essentially with our strategic forces and a little bit of theater nuclear force. The rebalance has to come between those two elements of the bet we placed. So, with the rest of the group, I think more weapons and a more diverse toolkit at the regional level are in our interest and in the interest of our allies.

But let us be clear. I do not think any of us are arguing that the United States and its allies should have a regional nuclear posture that is symmetric to that of Russia or China or North Korea. We have different strategies, so we need different numbers and different types of weapons.

Senator FISCHER. Would you say there are plans out there now that would address that? Has planning taken place? Do you know?

Dr. ROBERTS. Capability development or operational planning?

Senator FISCHER. Both.

Dr. ROBERTS. Both.

Senator FISCHER. Both. You said it. It is not the same. It is not the same.

Dr. ROBERTS. Correct.

Senator FISCHER. You have to address each one individually. So do you know of any plans that have taken place either within Government or outside of Government?

Dr. ROBERTS. So for development of new capability, the Administration certainly has a plan.

Senator FISCHER. Right.

Dr. ROBERTS. In my view, it needs to evolve in the direction we have talked about. Operational planning, of course the STRATCOM commander stands ready to do what might need to be done tonight. But I bear in mind the findings of the National Defense Strategy Commission of 2018, which concluded, as you will recall, that the United States could well lose a war against a nuclear-armed rival, largely not because we have the wrong capabilities, but because we have not understood the nature of the war that is being waged against us. We have not done our intellectual homework. We have not developed the concepts we need to organize our operational planning and conduct operations. I do not know to what extent that remains true, but that was an important marker that rang a lot of alarm bells for me.

Senator FISCHER. Thank you. Thank you, Mr. Chair.

Senator KING. This is the third Armed Services hearing I have been at today, and the question that you just touched upon has come up at all three, which is the change nature of modern warfare, and the likelihood of a modern conflict starting with cyber, directed energy, electronic warfare, space capabilities. I asked the Marine general today if his landing ships would be okay with no GPS [Global Positioning System] and no communications. That is the world that we have to live in.

So this is beyond the scope of this hearing to some extent, but I would be interested in your thoughts about, the cliché is generals always fight the last war. Are we doing that or are we adequately taking account of the change strategic, not only the strategic land-

scape but the technological landscape. Wars are often won on whoever has the newest technology.

Dr. Montgomery, your thoughts.

Dr. MONTGOMERY. I do believe we are. To some extent, at least when we talk about this in the nuclear domain I think we may overemphasize some of those changes in technology. They are very worrisome. They are concerning. They certainly pose risks to command and control, which is a serious concern. But at the end of the day, when we are talking about strategic stability between major powers, it ultimately comes back to the ability of one side to pose a disarming threat against another one. Right now we have Russia, that does not quite pose that capability but is a nuclear peer, China apparently aspires to be a nuclear peer, and those buildups are not unrelated to but separate from those very novel aspects of future warfare.

So I think while important, it is still essential to keep our focus, at least again in the nuclear domain, in terms of delivery system warheads, yields, accuracy, *et cetera.*

Senator KING. Well in command and control, I have always said we do not have a triad. We have a quad, that command and control is an essential——

Dr. MONTGOMERY. Absolutely.

Senator KING.—part of the credibility of the deterrent, which is essentially providing a deterrent.

Let me ask another question. We have talked about peer adversaries and Russia and China particularly. What about nuclear-armed countries that we are not engaged with directly, India and Pakistan being an example? What role, if any, do we have in their potential use of nuclear weapons? One of the things that I think that may be deterring Russia is after Hiroshima they have never been used. Nobody wants to be the first person to use them again, and I think that is something of a deterrent. I suspect that China is communicating that to Russia.

What about Pakistan and India? Ms. Bunn, do you have thoughts?

Ms. BUNN. That is a hard one because I think we have less influence. They are not our adversaries.

Senator KING. Right.

Ms. BUNN. They are not our formal extended nuclear deterrent allies, and so they are in a different category as far as how we deal with them and how we can influence them, how we deal with them as adversaries or how we can influence them as allies.

Senator KING. The last thing we want is to normalize the use of nuclear weapons.

Ms. BUNN. Absolutely. I would certainly agree with you that trying to make sure that nuclear weapons are not used again is one way to keep that diplomatic psychological pressure on them not to be the ones to do it.

Senator KING. Other thoughts on this issue?

Mr. WEAVER. Could I add one thing on it, Senator?

Senator KING. Sure.

Mr. WEAVER. I think another aspect of the question you are asking is when and if there is another limited use of nuclear weapons in a conflict, what lessons will all the other nuclear states—and

non-nuclear states—draw from the outcome of that use? That is another reason why it is so important that we focus on this problem of being able to deter limited nuclear use effectively, with high confidence, and second, if deterrence fails in a limited way that we have the ability to counter the effects of adversary-limited nuclear use so that they do not win the conflict as a result. They are not seen as having won because they used nuclear weapons, because that would create a huge proliferation problem around the world.

Senator KING. Well, I commented in my opening statement about the doctrine of "Escalate to Deescalate." The Russians have told us that is their doctrine, and for us to not take that seriously it seems to me is a major strategic and tactical mistake. I mean, Maya Angelou says when somebody tells you who they are, you should believe them. They have told us who they are on this subject, and we need to be sure that we have a credible deterrent that does not involve a massive strike, which they do not think we will do, if they use a one-kiloton weapon on Kharkiv. Dr. Roberts?

Dr. ROBERTS. I just wanted to add a comment on your comment about no one wants to break the taboo. I hope that is true, but President Putin seems like a guy who has gotten a lot of power and influence out of breaking taboos. In 2014, he stood under the banner when he explained his annexation of Crimea, the banner saying, "New Rules or No Rules." He has been living the "no rules" game and generating a lot of power and fear accordingly.

The taboo against the employment of nuclear weapons is one of the last major taboos he has not broken. I hope he does not break it, but I am not convinced that he thinks preserving the taboo is important.

Senator KING. Well, we have to give him a reason in terms of what he will reap as a consequence——

Dr. ROBERTS. That is right.

Senator KING.—beyond the taboo. We cannot rely on the taboo to protect us, I think.

Dr. ROBERTS. That is right. Absolutely.

Senator KING. I would like to like, are either of our Senators intending to come back? Okay.

Senator FISCHER.

Senator FISCHER. I just want to really thank you for being here today. I think these discussions are extremely helpful to, first of all, educate the Members of Congress, but also to educate our public as well to the threats that this country faces.

When we look at North Korea, they have various missiles. They have ICBMs. They have long range, short range. They have an underwater nuclear attack drone now that is out there. We obviously are developing things as well, but when we see other countries doing this, how does that affect us in our decisionmaking, to counter and provide deterrence, not just for the weapons, which we have talked about—tactical weapons, weapons in theater, the changes we see there regionally—but also the platforms?

Dr. Montgomery, you are nodding your head.

Dr. MONTGOMERY. I often do. Two points. I think there is a quantitative dimension to this and a qualitative dimension. So quantitatively, when you see countries like North Korea building up their forces—and we are not talking about a rogue State with 10

or 15 nuclear weapons, but potentially a regional nuclear power with 50 or 100 nuclear weapons—those numbers matter. It becomes potentially more difficult for the United States with say, 1,550 treaty-accountable strategic warheads, to manage threats from and deter a peer in Russia, an aspiring peer in China, a North Korea with a significant arsenal. That is a lot of weapons to measure up against.

In terms of the qualitative dimension, if you look at the diversity and capabilities that a country like North Korea is investing in—and, Senator King, this ties to your question about Pakistan and India as well—Pakistan also has made investments in low-yield nuclear capabilities. So now we see Russia placing significant emphasis on low-yield nuclear weapons, Pakistan placing significant emphasis on low-yield nuclear weapons, North Korea investing in low-yield nuclear weapons, and potentially China exploring low-yield nuclear weapons. We should probably take that message that a lot of adversaries and potential adversaries or countries we have difficult relations with see a lot of value in these capabilities and think about what deficiencies in our arsenal might exist that could potentially undermine deterrence, relative to those systems.

Senator FISCHER. It also limits the options that can be presented to our President to make decisions in a short period of time, in response to actions of other nations. Correct?

Dr. MONTGOMERY. Absolutely. You know, we talk about our strategic forces, one of their key attributes being promptness. Promptness, I do not think, is an attribute you would ascribe to some of the limited low-yield nuclear options that we have. That does mean that the options available to the President in a crisis that are time sensitive are limited.

Senator FISCHER. Any other comments on that?

Dr. ROBERTS. Sure. You asked about how we react watching these developments, and for a long time we watched and did not react. For a long time it was unthinkable to us that these things mattered because, after all, we had conventional dominance, we had confidence in our strategic nuclear deterrent, and we did not see—the problem, the threat remained unthinkable. It was just implausible to most in the U.S. national security community that an adversary might ever contemplate the possibility of employing a nuclear weapon in a conflict with the United States and somehow escaping intact.

Our view began to shift, principally as a result of the Russian annexation of Crimea, a wake-up call. As Ash Carter said at the time, it was time for a "new playbook on Russia," and we discovered a need for a new playbook on North Korea, a new playbook on China, and now we are all trying to create that new playbook.

Senator FISCHER. Thank you. Thank you, Mr. Chair.

Senator KING. Well, again I want to thank you. I cannot help but mention something that bothers me in this field. It turns out that no President since Jimmy Carter has participated in a nuclear exercise, an attack exercise, in real time. I find that puzzling. I mean, I do not the President to walk into that room for the first time in a real-life situation. I have gone through several of those exercises, and it is terrifying but also educational.

So that is neither here nor there, but I find it striking that, as I say, no President, apparently since Jimmy Carter, has participated in such an exercise, which I do not get.

Thank you all very much for your testimony today. It has been very informative, as I said, and helpful to this Subcommittee as we prepare for the National Defense Act that is coming up in a couple of months.

Thank you again. The hearing is adjourned.

[Whereupon, at 5:47 p.m., the Subcommittee adjourned.]