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NUCLEAR POLICY AND POSTURE

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FEBRUARY 28, 2019

NUCLEAR POLICY AND POSTURE

THURSDAY, FEBRUARY 28, 2019

UNITED STATES SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The Committee met, pursuant to notice, at 9:29 a.m. in room SD–G50, Dirksen Senate Office Building, Senator James M. Inhofe (Chairman of the Committee) presiding.

Members present: Senators Inhofe, Wicker, Fischer, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott, Hawley, Reed, Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King, Warren, Peters, Manchin, Duckworth, and Jones.

OPENING STATEMENT OF SENATOR JAMES M. INHOFE

Chairman INHOFE. Okay, our meeting will come to order, and I would ask our witnesses to be seated.

I had a chance to visit with them, and we've had experiences in the past. I always remember, Ms. Creedon, during the years that she was with Carl Levin, was one of real heroes of this Committee, and I always enjoyed the time that we had spent together.

The Committee meets today to receive testimony from the experts outside of government. We've had a lot of the same questions, a lot of the same issues, just last Tuesday, for example, with General Hyten and Scaparotti and—no, who was the other one that was——

Senator REED. That was General O'Shaughnessy.

Chairman INHOFE.—O'Shaughnessy, yeah. So, now we have people that are outside of the military, and we'll see what their thoughts are on some of the same issues that were there.

The Committee is focused on implementing the National Defense Strategy (NDS). That's this thing that we've been talking about. We've had two hearings on it. It's one of the few things Democrats, Republicans, everyone agrees what our mission should be. That's what we're talking about.

Now we need to modernize all three legs of the nuclear triad, as well as the warheads and infrastructure in the Department of Energy. There has been bipartisan support for the programs in the past. I'm hopeful that we're going to be able to continue that bipartisan spirit as we try to continue defending America.

Yet, we've heard proposals recently for dramatic changes in our nuclear policy and our force posture. Some believe that we could scale back modernization programs and still deter our adversaries. Others propose that we intentionally make our Intercontinental Ballistic Missiles (ICBMs) slower to respond or require Congress to

intervene before the Commander in Chief could use a nuclear weapon, even in the most extreme situations.

So, we are going to have to make some decisions. We're going to be doing our defense authorization bill. We're going to try to get everything on schedule, as we did last year. But, we're going to have to resolve these things. We want to get the best experts around. And that's why we're doing it with the uniforms and with those outside.

Some have even suggested cutting the entire leg of our nuclear triad, or two. Today, I hope that you'll be able to help us understand the importance of tying the nuclear modernization and sensible policy to the overall national security of the United States.

So, I think this is something that we recognize. We really failed to keep up with our nuclear modernization over the years. Consequently, our peer competitors, Russia and China, were doing things. So, the question is, have they passed us in some areas? I think the answer to that is yes.

We are also faced with several current issues related to arms control. While our colleagues on the Foreign Relations Committee will no doubt discuss these issues at length, the implementation of the withdrawal from the Intermediate Range Forces (INF) Treaty is a great interest to this Committee, so is this Committee's decision on whether or not we extend our New Strategic Arms Reduction Treaty (START). I'm interested in your opinions on these questions.

The three of you have broad expertise on nuclear operations and the Department of Defense (DOD) and Department of Energy (DOE), nuclear programs and arms control. This is a very well-informed panel, and I look forward to your testimony.

Senator Reed.

STATEMENT OF SENATOR JACK REED

Senator REED. Well, thank you very much, Mr. Chairman, and let me join you in welcoming our witnesses today.

Ms. Creedon, you have a long history serving this Committee, including as the lead professional staff member of the Strategic Forces Subcommittee when I had the privilege of chairing the Committee. Thank you for your help. You've also served the Nation as a senior official in the executive branch pertaining to nuclear policy.

Mr. Miller, you've served 31 years in the Federal Government as an expert on matters of nuclear policy and the strategy under both Republican and Democratic Administrations. You worked extensively on the Strategic Arms Reduction Treaties at the end of the Cold War and on the Strategic Offensive Arms Reduction Treaty in 2003. Thank you.

General Kehler, you commanded U.S. Strategic Command (STRATCOM) from 2011, when New START took effect, until your retirement in 2013. You are a trusted voice on all matters of nuclear strategy.

I want to thank all of you for the service to the country. Thank you.

I'd like to hear from our witnesses on a number of issues that have evolved since the release of the 2018 Nuclear Posture Review

(NPR). First and foremost is the Administration's notification of withdrawal from the Intermediate-Range Nuclear Forces Treaty, or INF Treaty, with nothing to replace it. While I understand that Russia was in noncompliance and that China also poses a threat, I am concerned that the United States did not redouble efforts to pressure Russia back into compliance or seek modifications to the treaty, if necessary. Treaties are a major component of our security strategy. We build and modernize nuclear weapons, but we also have treaties, which prescribe numbers and use. By withdrawing from the treaty without a strategy for what comes next, the Administration now has freed Russia to produce as many noncompliant SSC–8 missiles and their cruise missiles and their launches as they wish. These are small, highly mobile systems capable of hiding within Russia's large interior landmass while holding at risk targets across western Europe. The issue for the United States and allies is how to respond to these Russian deployments and whether we are entering a new destabilizing arms race.

A second issue I'd like the panel to address is the decision in the 2018 Nuclear Posture Review, or NPR, to pursue two new capabilities. One capability is to develop a low-yield warhead for the submarine ballistic missile to counter the Russian "escalate to de-escalate" strategy, which calls for Russia to use a low-yield weapon first in a conflict. In addition, the 2018 NPR called for a study on bringing back the submarine-launched cruise missile (SLCM) we retired in the 2010 NPR to also counter the Russian "escalate to de-escalate" strategy. While the threats may be changing, creating or renewing nuclear capabilities is not without controversy. I'm interested in hearing your views on whether these capabilities are necessary to protect our national security, if there are alternative responses to the threats, and what are the consequences to developing these new capabilities.

A third issue for our panel is the question of whether or not to adopt a policy of "no first use" of nuclear weapons. The United States has never adopted such a policy, and has preferred a stance of strategic ambiguity. I understand that this issue was debated at length during the Obama Administration, and the decision was ultimately made not to adopt such a policy, for strategic security reasons and to support our allies. However, I believe that a robust debate on this issue is always good, and I would like to know each of your views on a "no first use" policy.

Finally, I'm concerned that we are on the verge of breaking the longstanding linkage between arms control and nuclear modernization. In December 2010, when the Senate approved New START for ratification, part of the context surrounding that ratification was a bipartisan consensus that the nuclear triad would be modernized. President Obama affirmed this commitment to modernization in February of 2011. I'm worried that we are now breaking that linkage. We are moving forward on modernization, but have withdrawn from the INF Treaty, and there appears to be a growing reluctance to extend New START for 5 years past its expiration date of 2021. Arms control and nuclear modernization work should proceed hand-in-hand to increase our overall security posture. I would like to hear from our witnesses about whether they support extending

New START and what other arms control measures we might take with respect to nuclear weapons not covered by the New START.

Former Secretary of Defense Carter often stated that our nuclear deterrent is the bedrock of every national security action we take. It serves as the backstop to containing further conflict among nuclear-armed states. But, with that responsibility comes a commitment to engage, if possible, on reducing the level of risk these weapons might pose to the world at large. Every President since the dawn of the Nuclear Age has accepted this moral responsibility. I am deeply concerned today that the Administration is not pursuing the U.S. commitment as a responsible nuclear power to reduce the risk of nuclear confrontation. I look to this panel for recommendations on how best to engage on this commitment.

I think it's well to recall what President Reagan stated, "A nuclear war cannot be won and must never be fought. The only value in our two nations possessing nuclear weapons is to make sure they will never be used." As much as President Reagan valued a strong nuclear deterrence, he also valued the importance of arms control as an essential part of the security architecture to lessen the risk of these weapons being used. These two are linked and we must not forget that linkage.

Again, let me thank our witnesses for being here today.

Thank you, Mr. Chairman.

Chairman INHOFE. Thank you, Senator Reed.

So, we'll start with opening statements, and try to keep them around 5 minutes. Your entire statement will be made a part of the record.

Ms. Creedon, we'll start with you.

Senator REED. Mr. Chairman, excuse me, may I ask unanimous consent to submit a letter from former Secretary of Defense Ash Carter with respect to these issues of nuclear posture?

Chairman INHOFE. Yeah. Without objection, so ordered.

Senator REED. Thank you.

[The information referred to follows:]

HARVARD Kennedy School
BELFER CENTER
for Science and International Affairs

ASH CARTER
Director, Belfer Center
Belfer Professor of Technology and Global Affairs

February 14, 2019

United States Senator Jack Reed
Hart Senate Office Building

Dear Jack:

Thank you for inquiring about my views of nuclear weapons matters.

I commend you and Chairman Inhofe for your attention to this matter. My views as I expressed as Secretary of Defense have not changed.

The U.S. nuclear arsenal will be the bedrock of our security for as far into the future as I can foresee. Our arsenal is old and must be recapitalized. Those who argue that doing so will stimulate an arms race do not have the evidence of history on their side: during the past quarter century when the U.S. has deployed no new nuclear Triad systems, Russia, China, North Korea, Pakistan and (until recently) Iran have moved steadily forward with their programs.

My first job in the Pentagon during the Reagan administration was working on nuclear command and control. The sensors, command posts, and communications links we designed then are for the most part still relied upon. There's no point in having a safe, secure, and reliable arsenal without the command and control systems to match. These too require recapitalization.

A nuclear weapon of any type would unleash not only massive direct blast and heat, but a plume of long-half-life fission products that would pose a radiation hazard over a wide swath lasting not days or weeks, but years. Any responsible security leader in the United States should view recommending or authorizing use of nuclear weapons with the gravest seriousness. I certainly did as Secretary of Defense, and so also did every leader I worked for or with in 37 years of association with the Department. First use of nuclear weapons would be an absolute last resort. In fact any use of nuclear weapons should be a last resort. But I do not recommend a no-first use policy because no onlooker or opponent will believe that a promise made in peacetime can be counted on to endure in such extreme circumstances. Not forswearing first use might in fact strengthen deterrence, and for this reason our NATO and Asian allies are accustomed to having this risk posed to potential aggressors. A policy change that disquiets our friends without any effect on our potential opponents does not recommend itself.

I hope this is helpful.

Sincerely,

Ash

Ash Carter
25th Secretary of Defense
Director, Belfer Center for Science and International Affairs
Director, Technology and Pubic Purpose Project
MIT Innovation Fellow and Member, MIT Corporation

PHONE 617-384-6951
EMAIL *Ash_Carter@hks.harvard.edu*
79 John F. Kennedy Street, Box 53
Cambridge, Massachusetts 02138
www.belfercenter.org

Chairman INHOFE. Ms. Creedon, we'll start with you. Welcome back.

STATEMENT OF HONORABLE MADELYN R. CREEDON, FORMER PRINCIPAL DEPUTY ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

Ms. CREEDON. Thank you. Good morning, Chairman Inhofe and Senator Reed. It is truly a pleasure to be back before the Senate Armed Services Committee (SASC). Thank you for the opportunity to discuss nuclear modernization and policy.

It's also a particular honor to be here today with General Kehler and Frank Miller, both of whom bring years of experience and wisdom to the table.

To start off the discussion, I would like to make five points:

First, one of the most important things that this Administration could do is extend New START from its current 2021 expiration date to 2026. The treaty allows a 5-year extension by mutual agreement. It is a simple matter of saying yes. The Senate, because it provided its consent to the treaty, has no further role in the actual extension, but it would be very helpful if the Senate, on a bipartisan basis, could indicate not only broad support for the treaty, but actually urge the 5-year extension.

Extension of New START is in the best interests of the United States, as it provides strategic stability, certainty, and transparency. Moreover, a 5-year extension would allow an opportunity for discussions of what comes next in the United States-Russia relationship and in arms control. This could include nonstrategic nuclear weapons or some of the more novel systems that Russia has recently unveiled.

Point two is, support the triad. The current multi-decade program to replace the triad of U.S. delivery systems—a new ballistic missile submarine, a new ICBM, known as the ground-based strategic deterrent (GBSD), a new bomber, the B–21—are all important to the U.S. national security and that of our allies and partners. Similarly, the warhead life extension programs undertaken by the National Nuclear Security Administration (NNSA) will allow the smaller active stockpile to be maintained safely, securely, and reliably into the future.

President Obama, in seeking a world without nuclear weapons, said clearly in his 2009 Prague speech that, quote, "As long as these weapons exist, we will maintain a safe, secure, and effective arsenal to deter any adversary and guarantee that defense to our allies."

As a Nation, we dropped the ball on replacing these systems. The United States fought the long war in the Middle East and elsewhere, and nuclear deterrence was not a priority. As a result, President Obama laid out a program of delivery system and platform modernization along with warhead life extensions in the 2010 Nuclear Posture Review. For the most part, this effort was continued in President Trump's 2018 Nuclear Posture Review.

My third point is, focus on replacing the infrastructure at the Department of Energy's National Nuclear Security Administration, and supporting the science that underpins these life extension programs. Over the last 25 years, NNSA has made a significant in-

vestment in the science of nuclear weapons, allowing the weapons to be maintained and now life-extended without the need for testing. The scientific achievements are remarkable and were thought not to be achievable when the program started. The naysayers that were certain a return to underground nuclear weapons testing would be needed have been proven wrong.

While the science has excelled and still needs to be supported, the manufacturing side of the NNSA complex, however, was largely ignored. Many of the manufacturing buildings date back to the era of the Manhattan Project. Even with the inclusion of the new science facilities, 54 percent of the facilities are either inadequate or substandard. The NNSA complex is roughly the size of Delaware, has over 2,000 miles of roads, and has about six Pentagon equivalents of active space under roof. Replacing and upgrading the NNSA complex will be difficult and expensive, but, in the end, it will be the smaller, more modern, safer, and more secure complex that the Nation needs.

Fourth is people. DOD, the services, and NNSA don't have enough people. Getting the right people is very difficult, as there's a lot of competition. Developing and adopting more creative ways to attract, train, hire, and retain employees is critical. This could include scholarships, on-the-job training, and retention pay, for example, but, whatever is the answer, hiring has to be easier and faster. Of course, the backlog in getting new security clearances, updated security clearances, and even getting security clearances transferred from one agency to another has an enormous detrimental impact on the nuclear and national security enterprise, as well as the morale of the workforce.

Finally, I would like to highlight the need for a national discussion on deterrence, including nuclear deterrence. U.S. nuclear capabilities are the ultimate deterrent for the United States, but also many of our allies and partners. Their belief that the United States maintains a credible deterrent is critical to sustaining the alliances and avoiding the proliferation of nuclear weapons. Finding the right balance between reductions and modernization, and building the consensus to support both, was a major achievement of the Obama Administration. Sustaining that consensus will be difficult. Nuclear deterrence is not a popular topic of discussion, and one that is not well understood. President Obama tried to lead the way down the road that would head to a world without nuclear weapons. Sadly, the world didn't pick that path, and the threat of nuclear use is increasing.

Ensuring a safe, secure, and reliable nuclear deterrent for the United States and our allies can help to prevent nuclear use until the time when there is an opportunity to reduce the threat and resume work to set the conditions that will ultimately eliminate nuclear weapons. In the meantime, while the nuclear deterrent programs will vary and evolve over time, consistency in support and funding is necessary to ensure a safe, secure, and reliable deterrent for the United States, our allies, and our partners.

I look forward to any questions. Thank you.

Chairman INHOFE. Thank you, Ms. Creedon.

Mr. Miller.

STATEMENT OF HONORABLE FRANKLIN C. MILLER, FORMER SPECIAL ASSISTANT TO THE PRESIDENT OF THE UNITED STATES, AND FORMER SENIOR DIRECTOR FOR DEFENSE POLICY AND ARMS CONTROL, NATIONAL SECURITY COUNCIL STAFF

Mr. MILLER. Chairman Inhofe, Senator Reed, Members of the Committee, thank you for inviting me to appear before you this morning.

We live today in an increasingly dangerous time. As the National Defense Strategy and the 2018 Nuclear Posture Review make clear, the United States faces a revanchist Russia and an expansionist China, and both authoritarian governments are aggressively challenging United States and allied interests around the world, both are modernizing their conventional armed forces and expanding their nuclear capabilities. Given these threats, the peace and security of the United States and our allies depends on a posture which makes clear that we will deter any attack from Russia or China.

The bedrock of our deterrent capability rests on our nuclear forces, and the nuclear deterrence policy posture set forth in the 2018 NPR is squarely in the mainstream of U.S. deterrence policy as it has existed in Democratic and Republican Administrations for almost 60 years. It is not, as alleged by some, a warfighting policy. It is a deterrence policy. That policy is based, as Senator Reed said, on the very firm belief that a nuclear war cannot be won and must not be fought. But, our recognizing this is not sufficient. It's essential that potential enemy leaders recognize and understand this, as well. The greatest risk of nuclear war and to deterrence stability lies in a potential enemy miscalculating and believing it can carry out a successful attack.

As the Committee is aware, the United States has accomplished this goal since the early 1960s, principally by maintaining the nuclear triad undergirded by a command-and-control (C2) infrastructure and by a nuclear weapons complex. General Hyten spoke to all of you, 2 days ago, about why we need a triad, so I don't need to go there, except to say, as Ms. Creedon said, due to past neglect, the modernization of our nuclear forces and their associated command-and-control and warning systems is now of critical national importance.

With respect to modernization, there are two points I would like to make:

First, the program is not creating a nuclear arms race. Russia and China began modernizing and expanding their nuclear forces in the 2008 to 2010 timeframe, and, since then, have been placing large numbers of new strategic nuclear systems in the field. The United States has not deployed a new nuclear delivery system in this century, and the first products of our nuclear modernization program will not be deployed until the mid-to-late 2020s. Any notion that our program has spurred a nuclear arms race is counterfactual.

Second, modernization of the triad is affordable. Critics like to throw around a 30-year lifecycle cost to produce a sticker shock, but, as the Committee knows, 30-year lifecycle costs are always expensive. The cost of the modernization program, even when it's in full swing by the 2020s, is not expected to exceed 3 to 4 percent

of the defense budget. If you couple that with the 3 percent of the defense budget that goes to operating the nuclear forces, the total cost of protecting the United States and our allies from nuclear attack is between 6 to 7 percent of the defense budget. That's 6 to 7 cents on the defense dollar. Not too much to pay for preventing an existential threat.

Perhaps the most controversial and misunderstood element of the modernization program is the decision to deploy a very small number of low-yield warheads on Trident II missiles. As Senator Reed said, this relates directly to Russia's deployment of a military doctrine that envisages the threat or actual use of low-yield nuclear weapons to win a conventional war. Building and deploying a limited number of modified Trident II warheads counters that Russian strategy and dispels miscalculation and misperceptions in Moscow about our will and capability. The pernicious and contrived criticism that the low-yield warhead is designed to lower the nuclear threshold, thereby making nuclear warfighting possible, flies in the face of strategic logic and official policy, which is clearly and unambiguously stated in NPR 2018.

In closing, let me address the "no first use" issue. It is a superficially appealing policy, but, in practice, it is destabilizing. First, should the United States adopt such an approach, it will be read by our allies as removing our longstanding pledge to deter massive conventional attack against them. Withdrawing that promise would shake the North Atlantic Treaty Organization (NATO) alliance, particularly now, given growing transatlantic tensions and Russia's violation of the INF Treaty. It could also cause some allies who don't build nuclear weapons today to consider building their own.

Furthermore, if "no first use" became U.S. policy, the Department of Defense would ensure that it was enforced in the planning process. But, potential enemies have a different view. Russia's policy today is "first use." China has a "no first use" policy, but it's highly nuanced and may suggest that China would feel entitled to attack preemptively if its leaders felt threatened. That Chinese policy could change in an instant.

Finally, if the United States were to adopt such a policy, it's highly likely that the leaderships in Moscow and Beijing would not believe it, thereby vitiating any change in crisis behavior such a policy might hope to employ.

I don't have time in my opening remarks to address the arms control issues, but I have views on INF and on New START which I would be happy to share.

Thank you, sir.

Chairman INHOFE. Thank you, Mr. Miller. I can assure you, with the Members up here, that you will have an opportunity to be heard.

General Kehler, you retired in 2013. You've rested long enough. Get to work.

[Laughter.]

STATEMENT OF GENERAL C. ROBERT KEHLER, USAF (RET.), FORMER COMMANDER, UNITED STATES STRATEGIC COMMAND

General KEHLER. Yes, sir. Yes, sir. Thank you. Good morning, Mr. Chairman, Senator Reed, distinguished Members of the Committee. It's a real privilege to be here with you this morning, as well as to be here with my longtime colleagues to the right.

I want to emphasize that you're going to hear my personal views this morning. I'm not representing the Department or STRATCOM or the Air Force. In the interest of time, let me just offer a few points for you to consider.

First, as you are considering investment priorities, I would remind you that deterring the actual or coercive use of nuclear weapons against the United States and our allies remains the highest national security priority. There is no higher priority. While we don't have to rely on nuclear weapons to deter some of the same threats that we did during the Cold War, nuclear weapons continue to perform a critical foundational role in our defense strategy and the strategies of our allies. No other weapons carry the same risks and consequences, and no other weapons have the same deterrent effect.

Second, in my view, current U.S. nuclear policy is sound. Our nuclear policy has remained remarkably consistent over the decades and, when necessary, has changed in an evolutionary, not a revolutionary, way. The latest Nuclear Posture Review retains this consistency, but it evolves to address a resurgent great-power threat, and it raises the priority of deterrence and force modernization as a result. This NPR highlighted the need for tailored deterrence. That's a recognition that the United States must shape its deterrence strategies to individual actors that are all very different, and that we must apply all the strategic tools, not just nuclear weapons, to today's complex global deterrence problems.

As you heard, the Nuclear Posture Review also called for a small number of low-yield weapons to credibly deter Russia's new doctrine and their deployment decisions that back that doctrine up. Regarding declaratory policy, the last two Nuclear Posture Reviews have agreed that the potential conditions for the United States to consider nuclear use are extreme circumstances, where vital national interests are involved. I think that context remains valid.

My third point, the triad of ICBMs and ballistic missile submarines and long-range bombers and their supporting command-control-communications (C3) has served us well for over 50 years, and it remains the most effective and the most cost-effective means to deter attack and prevent coercion. The triad provides the mixture of systems and weapons necessary to hold an adversary's most valuable targets at risk with the credibility of an assured response if it's ever needed. Those attributes are the essence of deterrence. But, the triad also allows political leaders to signal intent and enhanced stability in a crisis or a conflict, it forces an adversary to invest in defenses, and it provides a hedge against unforeseen geopolitical or technical changes.

Some have recommended eliminating the ICBM leg of the triad. I believe that would be a serious mistake. We use the triad differently today than we did during the Cold War. Since President

Bush removed bombers and tankers from their daily nuclear commitment in 1992, we have relied on a relatively small diad of ICBMs and ballistic missile submarines to meet our daily deterrence requirements. The constant readiness of our ICBMs has allowed us to adjust the number of submarines routinely at sea. Together, ICBMs and Nuclear-Powered Ballistic Missile Submarines (SSBNs) have freed bombers for use by commanders in a conventional role, with great effect. Eliminating the ICBM leg would effectively leave us with a monad of ballistic missile submarines for daily deterrence.

Now, you might ask, "So, what?" Well, as a practical matter, relying only on ballistic missile submarines for daily deterrence means that an unforeseen advance in enemy capability or a technical failure would force a President to choose between having no readily available nuclear deterrence forces or rapidly returning bombers to nuclear alert. And that's a step that carries its own risks and costs. Eliminating ICBMs also greatly simplifies an enemy's attack problem, with implications for both stability and deterrence.

My fourth point. As you've heard from my colleagues, the time has come to modernize our nuclear delivery platforms, the weapons, the C3, and the infrastructure. The last concentrated investment came during the 1980s. Now, we continue to rely on that era's ballistic missile submarines, the missiles that are on them, and the B–2 bombers, as well as B–52s and Minuteman ICBMs and air-launch cruise missiles, and command-and-control systems that were designed and fielded much earlier than the 1980s. While all have been maintained and periodically updated, these systems have either passed or are reaching the end of their service lives. That is not the case with Russia and China, who have invested heavily and deployed modern nuclear systems as part of strategies intended to diminish our power and prestige.

So, as I close, I want to emphasize that clarity and consistency are as important now as they were during the Cold War. Since the end of the Cold War, policymakers across Administrations have sent conflicting signals regarding the continued value of the U.S. nuclear deterrent and the necessity and cost of its modernization. While I was still in uniform, a basic consensus had emerged regarding the need to modernize and the plan to do it. Mr. Chairman, I would argue we are out of time. Committing to the plan and moving forward to execute it will do much to demonstrate our resolve, and deterrence credibility demands it.

Thanks again for inviting me, and I look forward to your questions.

Chairman INHOFE. Well, thank you. Excellent statement. All three statements were excellent.

The only thing I would disagree with a little bit, Mr. Miller, was when you made the comment that we don't need to go there, because General Hyten already responded to this. The whole purpose, or major purpose, of this meeting is to get your perspectives, in addition to the other perspectives. From your opening statements, I think a lot of those are the same, but they need to be repeated.

So, what I want to do is take a couple of the comments that have been made outside and ask, just to set the stage, your response to those things that were said.

This would be for all of the witnesses: Some have proposed a variety of cuts in the nuclear modernization program. They argue that two or three of the triad are too expensive, unnecessary, and redundant. They also suggest that we might save money by life-extending current systems for several more decades. This is what we've been doing in the past. The band-aid approach. I would ask each one of you to say, do you agree with these suggestions I've just articulated? Starting with you, Ms. Creedon.

Ms. CREEDON. Thank you, Senator Inhofe.

Almost all of our delivery systems are extraordinarily old and have been extended pretty much to the end of their viable life. The one exception is probably the B–52. I don't mean to be flippant, but that will probably be with us forever.

[Laughter.]

Chairman INHOFE. Well, it already has been, yeah.

Ms. CREEDON. Oh. But, with respect, certainly, to the ground-based strategic deterrent, the new system that will replace the Minuteman-3 ICBMs and the *Columbia*-class 4, the *Ohio*-class, and the B–21, all of those are absolutely necessary and have to be replaced.

Chairman INHOFE. Good.

Mr. Miller.

Mr. MILLER. Sir, the triad, we all acknowledge, came about because of interservice rivalry in the 1950s. But, ever since it has been in force, it has been recognized by every successive Administration since President Eisenhower's, Democratic and Republican Administrations alike, as serving a unique feature. The various different vulnerabilities and various different offensive capabilities that the triad brings totally confound an enemy planner who would try to create a viable strategic surprise attack on the United States. As my colleagues have said, those forces, which were built in the 1960s, were modernized by President Reagan. They should have been modernized in the George W. Bush Administration, but have not been. We've had two successive Strategic Command commanders, Admiral Haney, now retired, and General Hyten, who have said those forces are going to have to be retired soon, in the next decade, with or without replacement. We've got to modernize the triad and its command-and-control and, as Ms. Creedon said, the nuclear weapons infrastructure.

Chairman INHOFE. Sure.

General Kehler.

General KEHLER. I agree with my colleagues. Each leg of the triad contributes something important, and together they provide us with a deterrent effect that you're not going to duplicate with a missing leg. I would only highlight one other thing, because it doesn't get enough attention, and I'm sure General Hyten mentioned this in his testimony the other day. At least I hope he did. That's the necessity of modernizing our nuclear command-control-communications (NC3) that support the triad. That has equal importance. We've often called it sort of a hidden leg of deterrence. I think it's true. It doesn't get enough attention. I would just urge

you to make sure that the investment in nuclear C3 is commensurate with the investment in the forces. We can't overlook it any longer.

If you want to look at, maybe, some of the oldest pieces of the nuclear deterrence system, I think you would probably find that, in the C3 system, we have some of the oldest elements. So, please don't ignore the C3 piece.

Chairman INHOFE. Excellent.

Yeah, I'm going to have to hurry to get to the other question that I'm asking all of you. Some of the suggestions that have been proposed are cutting the new cruise missile, the long-range standoff weapon, which is the LRSO, because it's destabilizing. If we were to cancel the LSRO program, do you believe that the air leg of the triad would still be an effective deterrent, a decade from now?

Let's start with you, Ms. Creedon.

Ms. CREEDON. Thank you, Senator.

The LRSO was a decision that was made during the Obama Administration to replace the existing air-launched cruise missile, which, again, like the other systems, had far outlived its usefulness. It was extraordinarily hard to maintain. So, in this instance, it's a one-for-one replacement. It continues a capability that has been with us for a long time. And because of the increase in integrated air defenses (IADs), having a new stealthy cruise missile to go along with the new air capabilities is essential.

Chairman INHOFE. Mr. Miller?

Mr. MILLER. I agree with everything that Ms. Creedon has said, and I do want to address your comment that some people in this town believe that it's destabilizing. That's an interesting concept, because, throughout the 1980s and beyond, the United States deployed nuclear-armed and conventionally-armed cruise missiles. They were not seen to be destabilizing. And if they're destabilizing, then the question has to be asked, in whose eyes? Russia is busily deploying both nuclear- and conventionally-armed cruise missiles today, as are the Chinese. So, while I understand that some people in Washington think it's destabilizing, the fact is that the potential adversaries do not and are putting these systems in the field.

Chairman INHOFE. Excellent comment.

Anything?

General KEHLER. I would only add that whether or not something is a new weapon, I think is in the eye of the beholder. I don't view any of the capabilities we've talked about here as new weapons, in that they are not new capabilities. The one thing that hasn't been said, an air-launched cruise missile—a nuclear-capable air-launched cruise missile makes our long-range standoff bombers viable well into the end of their service lifes, in another 20 or 30 or 40, or maybe longer, years, and it makes a penetrator like the B–2 or the B–21, which is what it will be intended to arm, as well—makes it more lethal, because it extends its range. So, I think that continuing to have a long-range nuclear-capable missile that our bombers can deliver is essential for deterrence in the future.

Chairman INHOFE. Well, thank you very much.

We're going to try to stay on course here. The other two questions I was going to ask all three, I'm going to ask for the record unless they are addressed by my colleagues.

Thank you very much.

Chairman INHOFE. Senator Reed.

Senator REED. Thank you very much, Mr. Chairman.

Again, thank you all for your excellent testimony.

Let me ask everyone to comment on the INF withdrawal. Let me suggest a couple of potential issues that are involved in this.

First is the potential for proliferation of the Russian SSC–8 missile, since now, there's no even formal document to constrain them, even though they broke the document. Second, it's the proliferation of medium-range missiles in other parts of the country, places like Ukraine, who might see this as an advantage. There's no longer an international rule governing that. Third, the potentially serious and detrimental effects to New START. In that context, there doesn't appear to me to be, at this point, any significant diplomatic activity to engage in a New START discussion. Time is running out.

So, let me start with Ms. Creedon, who was actually in here in 2014, when the Russians were called out.

Ms. CREEDON. Senator Reed, first, obviously the Russians were in violation of the INF Treaty. That said, I think the way that this Administration pulled out of the treaty was a mistake. I think there were opportunities not exercised for discussions. There's a lot of arguments that this is a treaty that has outlived its usefulness, but whether that's true or not, that is the sort of thing that should have been discussed. I think the unilateral decision to pull out of this treaty was a mistake. It's not clear that there is a strategy as to what comes next. I think, in some respects, it was a bit of a surprise to some of our allies. There's a huge amount of work to be done to understand what is the next move for the United States, with no limitations now on anybody.

Senator REED. Thank you.

Mr. Miller, please.

Mr. MILLER. Senator, first, let me say, I do believe that effectively enforced arms control treaties strengthen our national security.

The second thing I would say is that, sadly, Russia is on record as a serial violator of arms control treaties. There are nine separate arms control treaties or agreements that the Russians currently are in violation of.

Third, as with Ms. Creedon, I think the way the Administration rolled out its decision was a huge mistake. But, that said, I also believe that the treaty was dead, that the treaty had been killed by a cynical decision made by the Kremlin sometime in the 2011–2012 timeframe to proceed with a program that they wanted to do but that the treaty prevented them from doing. United States diplomacy on this issue started with the Russians in 2013, and, in the period from 2013 to 2018, while we talked, this cruise missile went through its final research, development, and testing phases, and all that that diplomacy has bought us now is 100 of these things in the field. So, I don't think the Russians felt constrained. It's a black program. They have hidden it. I think that if we nego-

tiated for another 5 years, there would only be more of these systems in the field.

Senator REED. Just to follow up, if we lose New START, then we would effectively have, for the first time since really, the 1950s, no nuclear treaties even pretending to control the growth of nuclear weapons in the world.

Mr. MILLER. I believe that we ought to be approaching the Russians with a new treaty concept that would cover all United States and Russian nuclear weapons. I understand that General Hyten had that same idea.

Senator REED. But, you can repeat it.

Mr. MILLER. But, it is, I think, very important, because right now New START caps conventional strategic systems.

Senator REED. Right.

Mr. MILLER. But, Mr. Putin has all of these exotic systems on the side that aren't covered, and he's got several thousand nonstrategic nuclear weapons, including the treaty-buster. I think we ought to finally get our hands around all of these. My personal view would be to cut a deal where we extend New START, on the condition that we begin serious negotiations on getting our arms around all United States and Russian nuclear weapons.

Senator REED. Thank you.

General Kehler, your comments, please.

General KEHLER. Sir, I would just add that the purpose of arms control is to make us more secure. I think that we can point to examples where that has been exactly the output of arms control, both the process and some of the treaties themselves. I would offer that the United States may find itself in a position from time to time where it has to withdraw from a treaty, but we should not withdraw from the process, because I believe that we have gained a great deal of insight over the years with our potential adversary over how they operate, what they think is important, and lots of other attendant issues. I would not withdraw from the arms control process. I do agree that, as we consider what should happen next, there are other issues that should be on the table that are considered as part of what we do next.

Senator REED. A final comment, because my time is running out—I concur, it just seems that there's no really strong, visible commitment to the process from the Administration. If you told me who was the chief negotiator, that they have a team, they've scheduled meetings with the Russians, et cetera, I haven't seen that. If you see that, let us know, please, because I think that's a step where we're missing, at the moment.

Thank you, Mr. Chairman.

Chairman INHOFE. Thank you, Senator Reed.

Senator Wicker.

Senator WICKER. General Kehler, explain what you mean by withdrawing from the treaty and not withdrawing from the process.

General KEHLER. Senator, what I mean is, my knowledge of New START is that both parties have been complying with it, and I think that it has helped us to reduce a number of operationally deployed weapons that could be aimed at us. I think that's a positive outcome. I also think that the engagement, to include the

verification regime, gets us on the ground, face-to-face, with the Russians, and vice versa. I think that's positive. In the INF Treaty, I think it's clearly violated, and we should not be in arms control treaties that are being violated.

So, I think that there's a balance, here. There is an overarching arms control process, though, an intent to want to have arms control, that I believe is valuable. I think that, because of all the things that I just mentioned, to include the benefits we get from face-to-face contact, I would continue to make sure that we have a process where we are engaging with the Russians. I think it's time for us to think about others with nuclear arms, and how they should play, as well. But, I would not turn my back on arms control, writ large.

Senator WICKER. A number of us just got back from the Munich Security Conference, and I just got back, also, from the Organization for Security and Cooperation in Europe (OSCE) Parliamentary Assembly. It is correct that not all of our allies are alarmed about our withdrawal from the INF. As a matter of fact, some of them are prepared to support that publicly. Are you aware of that?

General KEHLER. No, sir, I'm really not. I'm not current, in terms of where the allies are on these things. I do believe that this is an alliance issue, though.

Senator WICKER. Mr. Miller?

Mr. MILLER. Sir, the NATO alliance has formally endorsed the fact that Russia is in violation, and supported the fact that, if they are not back in compliance with the treaty in 6 months, which is an almost impossible task, that they support the fact that the United States believes that the treaty is null and void, because it only controls us, but not the Russians.

Senator WICKER. What was the inartful thing that we did, in terms of the way we got out?

Mr. MILLER. We should have said, from the beginning—and I think this was the plan—that Russia was in violation, that we have been talking to them for 5 years, that there is evidence that the system is out there—I think it was probably about 70 or 80 missiles at the time—and that we needed to take action to either bring them back or to withdraw. Instead, the way it rolled out was, "We are getting out of the treaty." The burden shifted from the Russians, who were cheating, to the United States, publicly. So, a lot of diplomacy had to be exercised to correct that impression. It's still not completely corrected.

Senator WICKER. Now, General Kehler says that the Russians are complying with New START. Mr. Miller and Ms. Creedon, do you both agree with that?

Mr. MILLER. I have not seen anything that suggests that they are not now complying.

Ms. CREEDON. Yes. Everything I've seen says they are complying. I think there was testimony earlier, by General Hyten, that they are also in compliance. So, everything I've seen, that they are.

Senator WICKER. Okay. With regard to "no first use," Mr. Miller has expressed his opinion, so I'm going to ask that question to Ms. Creedon and General Kehler.

Ms. CREEDON. Senator, I think the "no first use" is a very difficult topic, and a serious topic, and it really needs discussion. It

is an idea that we will not be the first ones to use nuclear weapons. The history of the United States has been that our policy has been that of ambiguity, that we will maintain ambiguity so that our potential adversaries will not know how we will respond.

Senator WICKER. That we don't rule out options.

Ms. CREEDON. We don't rule out options. I think that has served us very well.

Now, that said, there was a substantial discussion, as you all know, at the end of the Obama Administration, and I think it's a discussion that needs to be continued.

Senator WICKER. Okay, so you're not entirely on the same page with Mr. Miller. You're a little more open to the idea.

Ms. CREEDON. So, I don't think it's a good idea right this minute. I do not——

Senator WICKER. Okay.

Ms. CREEDON.—think "no first use" is——

Senator WICKER. Good, then. Well, let me just turn——

Ms. CREEDON.—but it's one that——

Senator WICKER.—then, to General——

Ms. CREEDON.—you should talk about from an ambition perspective.

Senator WICKER. General Kehler.

General KEHLER. I would not establish a "no first use" policy. I think one of the things we forget sometimes is that the U.S. nuclear deterrent is unique among all the nuclear powers, in that we extend a deterrent umbrella to our allies. We do so publicly. We've done so since almost the dawn of the Nuclear Age. I think that we need to be very careful that establishing such a policy doesn't harm the credibility of the extended deterrent, as well.

Senator WICKER. Thank you.

Chairman INHOFE. Thank you, Senator Wicker.

Senator Peters.

Senator PETERS. Thank you, Mr. Chairman.

Thank you, to our witnesses here today.

Ms. Creedon, I want to ask you this question. Earlier this week, General Hyten raised some concerns about some of the other strategic weapons that Russia is developing. I think you alluded to that in your opening comments, things such as the nuclear-armed hypersonic glide vehicles, globe-circling nuclear-powered cruise missiles, long-range nuclear torpedoes that can be used against U.S. coastal cities. How concerned should we be by these weapons? Do you believe that that strengthens the case to extend New START?

Ms. CREEDON. Yes, I think we should be very worried about these systems. I do think it absolutely is one of the reasons why we should extend New START for the 5 years, because I do agree with the plan, with the idea, that we need to have discussions with Russia to understand how those systems can be limited, how they can be made more transparent. The 5-year extension of New START would allow us that opportunity to have those discussions. Resuming discussions with Russia is incredibly important, and it's just something that has not been able to be done right now. But, we've got to make progress on these issues.

Senator PETERS. Thank you.

To our other witnesses, do you share those concerns?

Mr. MILLER. Senator, those systems that you mentioned are not covered by New START. That's one of the reasons why I believe a new approach to arms control with Russia that encompasses those systems, as well as the ones that are taken up by New START, is terribly important. All of those systems are outside the treaty, as are the short-range ones. Therefore, if arms control is supposed to provide security, we're only doing it at halfway, which is not a sufficient way to do arms control.

Senator PETERS. Although it's not in the treaty now, does the treaty give us a hook to bring those in, or does it not?

Mr. MILLER. No, sir. It would have to be a new negotiation.

Senator PETERS. General?

General KEHLER. I agree. From a military standpoint, at least, I am always concerned by new capabilities that are being introduced that are not covered. So, I would be very careful about how we view the extension of New START and how we manage the conversation about new capabilities. We have to remember that our deterrent is both to prevent the actual use of the weapons and the coercive use of the weapons, as well. I think that's something that sometimes we overlook.

Senator PETERS. Right.

The other issue that I'm concerned about is the development of new low-yield nuclear weapons that are going to be deployed. I know nuclear theory has a lot of terms used to discuss how a war may be fought using nuclear weapons: escalation dominance, tailored deterrence, counter-force targeting. I think there's a long list of those. But, we also understand the fog of war is a real factor in conventional warfare, and likely would be even more so if there's any kind of nuclear conflict.

So, my question to you is that, if Russia were to use a low-yield nuclear weapon, the United States, under the theory, could respond using another nuclear low-yield weapon. But, certainly folks would argue that that may lead to a certain escalation. Some have argued that maybe just having very large-yield weapons is more of a deterrence than trying to match low-yield to low-yield. Certainly would like to kind of get your thoughts unpacking those thoughts.

We can start with Ms. Creedon.

Ms. CREEDON. If, under your question, Russia were to use a low-yield nuclear weapon, the United States would have available the full complement of its response; and, whatever the circumstances were as a result of that use, the United States should take a response that is appropriate under those circumstances. Whether that's a lower-yield nuclear weapon, whether that's a conventional response, whether that's a higher-yield nuclear weapon, I think is very situationally dependent. I guess I'll just leave it at that. I think we have, in our arsenal right now, the full range of systems to be able to respond to whatever Russia does.

Senator PETERS. Without developing a new low-yield weapon.

Ms. CREEDON. Without developing a new low-yield.

Senator PETERS. Mr. Miller?

Mr. MILLER. So, Senator, I think the first point is, the risk of escalation is, in fact, what stops leaders short from using nuclear weapons in the first place. My concern is that the Russian develop-

ment of this "escalate to win" strategy and the weapon systems that they have put in the field, the new ones, to sustain that strategy, was done in full recognition of our current capabilities, which leads me to believe, and others in the intelligence community, that the Russians don't believe that our current arsenal provide a sufficient response. The small number of low-yield Trident II weapons provide a response to that, thereby preventing the Russians from thinking they could use a low-yield nuclear weapon in the first place. The Russians have a full set of tactical nuclear weapons. The United States is not seeking to mirror that posture. We're talking about a small number of Trident II weapons that would do the job.

Senator PETERS. Briefly, General?

General KEHLER. Senator, I think you're right, there's a theology that goes with all of this. Unfortunately, it's never been tested. So, it's hard to say, "Well, this would happen, and that would happen, and this would happen." I think the objective, though, is to remember that deterrence is based on two things: one, it's in the mind of the adversary and the adversary believes that they can't achieve their objectives; or, two, they're going to suffer unacceptable consequences if they try. So, that's the foundation, here, that we're trying to continue to pursue. The paradox of the Nuclear Age is that, in order to prevent their use, you have to be prepared to use them. That's been a paradox forever. And all the theologians talk about the big paradox.

I think the important point to remember here is, you want to be able to provide the future policymakers options. In that kind of a scenario, you want options that are below the nuclear threshold, you want to be able to use conventional, precision-strike weapons when you can, et cetera, et cetera, et cetera, but you don't want to have to go from there to offer the next option to be a high-yield nuclear weapon. Something in between is required, we believed, for deterrence credibility. That's the objective, here. It's not about nuclear warfighting, as Mr. Miller said earlier on, but the paradox is, in order to prevent it, you have to be ready to confront it.

Senator PETERS. Thank you.

Chairman INHOFE. Thank you, Senator Peters.

Senator Fischer.

Senator FISCHER. Thank you, Mr. Chairman.

I'd like to begin by looking at unilateral reductions. Sometimes that's been a proposal that's put out there. I would just ask for a yes-or-no from the panel, to begin with. Do any of you support unilateral reductions by the United States? Everyone's indicating no.

We heard from General Hyten, a couple of days ago, that doing so would be inconsistent with the current security environment. He stated, quote, "The only way to change our strategic deterrent is to convince our adversaries to reduce the threat. And this is not occurring." Would you agree with that assessment?

General Kehler, why don't we begin with you?

General KEHLER. Yes, I would.

Senator FISCHER. Mr. Miller?

Mr. MILLER. Yes, ma'am, I would.

Ms. CREEDON. Yes.

Senator FISCHER. Okay.

I thank you for the information that you provided to us about the triad. I think the triad is extremely important to our national security. There has been some talk out there that the United States should possibly begin to mimic the Chinese in their smaller approach to nuclear weapons. They are rebuilding their force, is information I have. They're expanding from a diad to a triad. They are in a different position than the United States. You touched on the fact that we have a nuclear deterrent that has an umbrella effect, because we do protect allies, et al. Would you continue to support the posture that the United States has with regard to the umbrella effect we have with our allies?

Mr. MILLER. I think that that posture is extremely important, not only for providing stability in Europe and in northeast Asia, but it also serves as an antiproliferant, if you will. Some of our allies could build nuclear weapons. They don't, because we provide the umbrella over them. If we withdraw that umbrella, then the situation changes for them dramatically. So, as I said in my remarks, the policy we have has served the country well for over 60 years, and I support that policy.

Senator FISCHER. Okay.

Ms. Creedon?

Ms. CREEDON. Yes, Senator, I also feel that our responsibility to our allies to provide that umbrella is absolutely essential. It does have a nonproliferation benefit, and it's one of the reasons why we have to make sure that our own deterrent, because it's their deterrent as well, is credible and well maintained.

The longer-term question is, how do we introduce a discussion in China? How do we introduce a discussion about arms control in that region that has no history and no incentive and apparently no interest in it? So, that's the longer-term question that we have to think about.

Senator FISCHER. Do you think the possibility for opening up discussion with the Chinese could occur now, since we are pulling back from INF Treaty, and the Russians are? Do you think that we can bring other members of the nuclear club into that discussion now?

Ms. CREEDON. It would be a good thing to see if we can start having some very preliminary discussions, bring our allies in the region to the table; understand what their views are first, make sure that we are closely aligned with all of our allies and partners in the region, and to see if we can develop some sort of a dialogue that could be presented to the Chinese to begin some sort of stability talks. I think it would be useful. I'm not terribly hopeful, but I think it would be useful to at least start.

Senator FISCHER. But, you don't believe there is any indication, so far, from the Chinese that they would be interested in being involved in the process?

Ms. CREEDON. We haven't seen it, but I'm also not sure if there have been any real overtures in that effect. But, I think we should still start working on it and start planning for the possibility that it might be an option.

Senator FISCHER. Do you believe that pulling out of the INF Treaty gives the United States more latitude in addressing some of the weapons that the Chinese are developing?

Ms. CREEDON. Certainly, it does. One of the discussions really is conventional systems in Asia Pacific, in the Indo-Pacific region, and whether or not those are going to be needed.

Senator FISCHER. Okay.

General Kehler, did you have comments?

General KEHLER. No, I would just agree with my colleagues. I would add one other thing to your comment. The Russians and the Chinese will deploy the nuclear forces that they think are necessary for their own security. Significantly, though, I think it's important to remember that neither one of them deploys nuclear systems with the idea that they have allies to provide an umbrella for. The Warsaw Pact is extinct.

Senator FISCHER. You know, there is a group that seems to be promoting the idea that the United States is the destabilizing force when it comes to arms race. We hear about destabilizing in arms racing. What are your thoughts on that narrative? Is the United States provoking that arms race? Are we undercutting the nonproliferation regime that's out there?

Mr. Miller?

Mr. MILLER. Senator, as I said earlier, since 2008–2010, Russia and China have been placing new systems in the field—new ICBMs, new strategic submarines, new submarine-launched ballistic missiles, new bombers, new air-, sea-, and ground-launched cruise missiles. The modernization program before this Committee, before the Congress, will not produce a new system until the mid-2020s and beyond. Former Secretary of Defense Ash Carter, said, "There is a nuclear arms race, but the United States is not in it." We in no way are spurring Russian and Chinese developments. They're marching to their own drum, as General Kehler said, and they started doing that 10 years ago.

Senator FISCHER. Thank you, sir.

Thank you, Mr. Chairman.

Chairman INHOFE. Thank you, Senator Fischer.

Senator Warren.

Senator WARREN. Thank you, Mr. Chairman.

Thank you, to our witnesses, for being here today.

The nuclear deal between the United States, five other countries, and Iran placed Iran's nuclear program under limits and inspections so that it cannot develop a nuclear weapon. So far, this deal has worked. But, President Trump put it at risk when he unilaterally withdrew the United States and reimposed all the sanctions on Iran that were meant to be waived as a condition of Iran's compliance with the agreement.

While the United States has violated the nuclear agreement, Iran has kept its part of the deal. Last month, the Central Intelligence Agency (CIA) Director said, in reference to Iran, and I'll quote here, "At the moment, technically they are in compliance."

Ms. Creedon, do you agree with the CIA Director that Iran is complying with the nuclear agreement?

Ms. CREEDON. Senator, obviously I don't have access to all the intelligence——

Senator WARREN. Based on what you know——

Ms. CREEDON.—but just recently, the International Atomic Energy Agency confirmed that they were in compliance.

Senator WARREN. Okay. So, staying with the nuclear deal, also called the JCPOA, last month the Director of National Intelligence released a Worldwide Threat Assessment, and it says, "Iran's continued implementation of the JCPOA has extended the amount of time Iran would need to produce enough fissile material for a nuclear weapon from a few months to more than 1 year."

Ms. Creedon, based on your understanding from publicly available information, is that correct?

Ms. CREEDON. My understanding, Senator Warren, is, that is correct, and there have been other articles to that effect, as well, that have been in the public.

Senator WARREN. Okay. This month, Vice President Pence urged our European allies to abandon the Iran nuclear deal. If this agreement collapses, would that complicate efforts to prevent Iran from developing a nuclear weapon?

Ms. CREEDON. Senator, the whole purpose of the Iran deal was to ensure that Iran wasn't able to produce the fissile materials necessary to get a nuclear weapon. It was the most challenging thing and why the Obama Administration focused on that one aspect. And so, if that deal were to unravel and Iran were not constrained under the JCPOA, then the only thing you can conclude is, they would go back to what they were doing before, which is making fissile materials.

Senator WARREN. So, just to summarize it here, our intelligence community says that Iran is complying with the only agreement that prevents Iran from getting a nuclear weapon. This agreement has made it harder for Iran to get a nuclear weapon. And then President Trump walks away from the deal, with no backup plan. This just doesn't make any sense.

The nuclear deal is still working, so I think enforcing the current deal to prevent Iran from getting a nuclear weapon is a whole lot better than no deal at all.

Thank you.

I have one other question, in my time remaining, that I'd like to follow up on, and that follows up on Senator Peters' question. The New START with Russia currently imposes limits on our two countries' strategic nuclear arsenals, and it provides us with valuable information on Russia's strategic forces. This treaty can be extended for another 5 years, until 2026, if both of our governments agree to it. In a hearing on worldwide threats last month, the Director of Defense Intelligence Agency said that Russia is complying with New START. The State Department has reached the same conclusion.

Ms. Creedon, based on publicly available information, do you agree with the Defense Intelligent Agency Director and the State Department?

Ms. CREEDON. Yes, Senator. Everything that I have heard indicates that Russia is still in compliance with New START, as is the United States.

Senator WARREN. And you once served as a high-ranking official at the National Nuclear Security Administration. Can you briefly describe how New START enhances our national security?

Ms. CREEDON. So, New START covers strategic warheads and delivery systems, and it counts operationally deployed strategic sys-

tems. It provides that limitation both to the United States and to Russia, so it provides stability. It provides transparency through the various mechanisms of inspections. It also provides additional transparency and the ability to discuss issues associated with implementation through the Bilateral Consultative Commission. This Commission, provided under the treaty, meets on a regular basis, and this is where the relationship, the discussion, the inspections, and the transparency all get discussed, as well as exercised in the field. It provides immense intelligence. I think, even General Hyten, last week, said, "Although our own national intelligence means are quite good, the on-the-ground, seeing-with-your-own-eyes is never a substitute for national technical means."

Senator WARREN. Well, I appreciate that, and that's very helpful, and it helps explain why it's in our national interest.

I don't trust Putin, but New START is a verifiable arms control agreement, and it expires in just 2 years. President Trump has already ripped up another nuclear arms treaty with Russia, the INF Treaty, and appears to be running out the clock on New START, without any plans for a follow-on agreement. We have a strategic and a moral responsibility to do everything in our power to prevent another nuclear arms race. This means commonsense arms control, which helps make America safer.

Thank you.

Chairman INHOFE. Thank you, Senator Warren.

Senator Scott.

Senator SCOTT. With regard to Russia, Iran, and China, do they have any internal pressure to reduce their nuclear research or any existing capability? Do they have any internal pressure, like we do? We have to worry about how we spend our dollars and things like that. Do you feel like they have any internal pressure? Any of you?

General KEHLER. We've debated, for a long time, Senator, when I was still wearing a uniform, about how internally, what the dynamics are in those three places. I can't really say whether there's internal pressure that we just never get to see on these matters. The intelligence community, I think, would have a better sense of all of that.

What I do know is that, from outward appearances, anyway, Russia and China have prioritized their nuclear forces at the top of their lists, and they've done so as part of strategies that are intended to diminish our power and prestige, to separate us from our allies, and to make it too hard for us to interfere in what they believe are their affairs in their regions. So, I think, by their actions, it would indicate to me, looking at it from the outside, that, if there are voices inside that are objecting, they're not being influential. A mentor of mine has always said, "When we're talking about deterrence, you have to look at an adversary's intent and capability." You can change intent in the next 10 minutes. What you can't change is capability over a short period of time. I used to look at their capability, and their capability is formidable, it's modernized, and it's getting better.

Senator SCOTT. Mr. Miller?

Mr. MILLER. I'd agree with General Kehler.

Senator SCOTT. Okay.

Ms. Creedon?

Ms. CREEDON. Yeah, I would agree. The other aspect is, we are a very open and transparent society, and the same cannot be said of either Russia or China. So, it's very hard to understand what the population would know and whether or not they even have the ability to raise issues internally.

Senator SCOTT. Right.

So, they have no internal pressure to stop. Do you trust any of those three countries? Do you trust the leadership of any of those countries?

Mr. MILLER. I trust the leadership of Russia and China to be pushing us around the world. I think that the statements coming out of Mr. Putin and his cronies about nuclear attacks on ourselves and our allies are outrageous and haven't been heard since the Khrushchev era. I think that the building up of new islands in the South China Sea, a claim to try to block commerce using the South China Sea as an internal lake, the close-aboard incidents of Chinese and Russian aircraft to our ships and our own aircraft indicate a dangerous sense of adventurism. So, no, I would not trust either of those leaderships one bit.

Senator SCOTT. Anybody else? No way, right?

General KEHLER. I always liked the trust-but-verify line.

Senator SCOTT. Yeah. I agree with you.

General KEHLER. So, I think that's still a good one.

Senator SCOTT. So, step one, they don't have internal pressure. Step two, we don't trust them. Okay? Then the next thing is, when we watched the INF, they didn't comply with the INF Treaty—can you actually do something when you have somebody on the other side of the table from you, can you actually do something with them that you feel any comfort that they're going to comply with it?

Mr. MILLER. Yes, I think you can, if you have intrusive verification measures. The INF Treaty, for its first several decades, had very intrusive verification measures, and we were confident that the Russians were not cheating. The same thing was true of the original START treaty. New START provides somewhat less verification capabilities, but we are confident of that one treaty, alone. But, as I said in my other remarks, the Russians are currently in violation of nine other treaties where we do not have adequate verification capabilities, but the results are plainly seen.

Senator SCOTT. Anybody else?

Ms. CREEDON. Yes, Senator. New START is extraordinarily important because of the inspection regime that goes with it. That's what allows us to have the confidence that Russia is, in fact, in compliance with New START. It's also why the treaty should be extended, because, without it, we lose those intrusive inspections, we lose that knowledge. The other reason for extending that treaty is to provide us the opportunity to tackle those things which are not covered by the treaty, the nonstrategic weapons, some of these novel systems, and trying to devise a treaty that would cover those and also have those same intrusive-type inspections, which would provide the confidence.

Senator SCOTT. So, did the Iran treaty have the same opportunity to guarantee that the Iranians were complying? Any of you.

Ms. CREEDON. Under the JCPOA, the International Atomic Energy Agency was assigned that responsibility. They continue to provide those inspections and, just recently, issued a report, that's not yet public, but the press covered it, that they continued to find that Iran was in compliance.

General KEHLER. Senator, I would only add that I think you have to think about verification in terms of layers—we have always said that verification is layers that range from national technical means that might be flying in space down to intrusive onsite inspections. I think the more elements of that you have, the more confidence you have in verification. The fewer elements you have, the less confidence you should have in verification.

Senator SCOTT. Thank you.

Chairman INHOFE. Thank you, Senator Scott.

Senator King.

Senator KING. Thank you, Mr. Chairman.

To follow up on this line of questioning, my understanding is that the layers that you talked about with regard to Iran were the most vigorous of any treaty that we've ever negotiated. Is that accurate, Ms. Creedon?

Ms. CREEDON. The authorities that the IAEA, the International Atomic Energy Agency has—were extraordinarily intensive and extraordinarily invasive, more so than IAEA's relationship with any other country.

Senator KING. Thank you.

I want to follow up on Senator Fischer's good questions. Ninety percent of this hearing has been about Russia and the United States, a little bit about Iran. But, we're talking about major new nuclear powers; China, for example. Shouldn't we be very actively thinking about how to bring them into these discussions? We could have a great treaty with Russia, but it doesn't necessarily protect us if China is just moving apace.

Mr. Miller?

Mr. MILLER. As Ms. Creedon said, I think it's important to try to have outreach to China. China has shown no interest in any sort of arms-reduction talks with us at all. So, while it's important to keep trying, I think the record, so far, suggests that it's been pretty fruitless. Doesn't mean we should stop, but there's no joy there.

Senator KING. An implicit assumption that's been going around in this hearing is that the Administration is not actively pursuing the necessary preliminary steps to renewing New START. Is that true? Is there any evidence of that? Is there implicit hostility in the Administration to the extension of New START? Is there evidence of that?

Mr. MILLER. I believe that the Administration, in its internal deliberations among the key players—State, Defense, National Security Council (NSC), Energy—is looking at means of dealing with the kinds of questions that we've been talking about.

Senator KING. I'm sorry, reinterpret that for me. Are they looking at the steps necessary to extend New START?

Mr. MILLER. I believe they are looking at the steps to extend New START, in the context of trying to get a handle on all Russian and United States nuclear weapons.

Senator KING. You said the Chinese were uninterested. Are we interested? Have we reached out to them, in terms of opening a discussion on this issue?

Mr. MILLER. I'm not aware of any official openings. I know a great deal of unofficial openings that have been pretty fruitless.

Senator KING. I think it was, early on, mentioned: command and control. That's one of the most serious parts of this issue, and I don't think it gets significant attention. Mr. Miller, give me your thoughts on that as a triad-plus, I think I would call it.

Mr. MILLER. I will defer to General Kehler. But, the command-and-control system is antiquated, and it's got to be replaced. It's the absolute backbone of our deterrent. If a potential enemy believes that they can cripple the command-and-control system, they——

Senator KING. Then the rest of the triad is not useful.

Mr. MILLER. Yes, sir, that's correct.

General KEHLER. I completely agree.

Senator KING. Any response to Putin's recent statements about our placing of missiles in Europe? Could we discuss that?

Start with you, Mr. Miller.

Mr. MILLER. First, Putin is showing a degree of hypocrisy, which is astonishing even for him. He breaks the INF Treaty, he puts missiles in Europe, in the European part of Russia——

Senator KING. That places Europe at risk.

Mr. MILLER.—and then says, "By the way, if NATO responds, we're really going to target you." That's absurd.

The second thing is, the kind of rhetoric that's been emerging from the Putin Administration since the early 2010–2013 period, where they talk about holding western European cities at risk, holding the United States at risk, has no place in the current international environment. This kind of nuclear intimidation, trying to cow us and allied leaders, I think is utterly out of place. It goes back to the point that General Kehler said, you've got to have a strong deterrent.

Senator KING. Well, and this whole articulation of the so-called "escalate to de-escalate," which I think you better characterized as "escalate-to-win"—that's really what it is—is a very aggressive policy.

Mr. MILLER. The more important thing about that, Senator King, is that, not only is there a doctrine to do that, they've fielded new weapon systems to do that, and they've exercised those weapon systems. So, one can talk about Putin's rhetoric, on the one hand, but this is a very real Russian military capability that they practice.

Senator KING. Which gets to the General's comment about capability plus will.

Mr. MILLER. Yes, sir.

Senator KING. They're in the position of having both.

Mr. MILLER. Yes, sir.

Senator KING. Which, again, brings me back to where we started. I like what you're suggesting of talking about extending New START, but broadening it and trying to recapture some of the general arms control momentum.

Thank you all very much.

Mr. Chairman, thank you for this hearing. This has been very illuminating and important.

Chairman INHOFE. Well, thank you, Senator King.

Senator Cramer.

Senator CRAMER. Thank you, Mr. Chairman.

Thanks, to all of the witnesses, for helping us continue this very stimulating topic that is important to me and my home State of North Dakota, as well as to the security of the country. This has been fascinating.

You know, one of the things we haven't talked about, and I hear a lot about, particularly in my terms in the House, that some in the arms control community has talked about de-alerting or, lengthening the time before an ICBM would be fired. They argue that somehow if we de-alerted our missile system, that that would have a stabilizing effect. And, by the way, I was just in Minot last week in a launch facility. I even accused the wing commander of hiring actors. They were so good. I was so impressed, when I left there, with the airmen and the officers. I couldn't feel more confident than I do today, having met those professionals. General, do you think that we have a destabilizing control in those bunkers, or do you think this is all silly?

General KEHLER. Well, Senator, I don't think that the debate is silly. I think that it's good for us to have this conversation from time to time. First of all, I agree with you completely. I think the men and women that are in our nuclear forces are extraordinary. Sometimes we overlook talking about them and their professionalism and the discipline that's required to be in that force. It's significant.

I believe—again, it gets back to capability and intent. I do not think that the Russians intend to launch a no-notice, massive nuclear strike on the United States. But, they have the capability to do it. As long as they do, my view is, we have got to be able to respond to that kind of an attack quickly, if that's the decision that we need to make. As you point out, the ICBMs are the force that happens to be the most responsive. There are layers of safeguard, here. People talk about hair triggers. Our forces are not on any kind of a hair trigger. That's, I think, a very unfortunate characterization that we hear a lot. It's not true. There are layers of safeguards, and there are certainly processes in place that ensure that those forces that are in a ready-to-use kind of a configuration would need to get unlock codes before they could be used. So, it isn't the same thing at all as thinking about a Wild West hair trigger on, a pistol somebody would pull from a holster. It's not the way it works.

Senator CRAMER. Yeah.

General KEHLER. So, I never lost any sleep, as the Commander of STRATCOM, worrying about whether or not our forces were on a hair trigger, or whether or not that contributed to instability or some likelihood of an unauthorized or inadvertent launch. I think, again, the safeguards are in place. They reassure me. I think that our deterrent would not be as effective if the Russians or anyone else believed that they could launch some kind of an attack that would enhance their ability to think that they could achieve their objectives.

I would leave our force posture alone. It is far less aggressive than it was during the Cold War. The Cold War has been over for almost 30 years. We should stop looking back over our shoulder. This is a new era. We have the triad configured in a certain way that I think matches this era. We've changed the mixture of the weapons, so we're not in a use-or-lose kind of an environment. I think that we need to recognize that we, essentially, have a diad today. So, I would not change our force posture.

Senator CRAMER. Well, that was both an intelligent and passionate response to the question. I wish you could bring every American down into a control center in a launch facility so they could see what you're describing, could see the safeguards that are in place, as well as the professionalism of the folks in charge. It gives me a great sense of confidence.

Mr. MILLER. Senator Cramer?

Senator CRAMER. Yes.

Mr. MILLER. May I add add one other point?

Senator CRAMER. Please. Mr. Miller, yes.

Mr. MILLER. This is another one of these superficially attractive ideas, like "no first use," which is truly dangerous. We've studied this issue in the Department of Defense for decades. There is no way of verifying that missiles are off alert. There is just no way of doing it. But, if you pass a magic wand and assume that you can put missiles verifiably off of alert, and a crisis develops, now you're in a race to re-alert, and that becomes a hugely destabilizing situation. So, again, it's a great bumper sticker, but it's a terrible, terrible policy.

Senator CRAMER. Ms. Creedon, I know you want to say something about it, and then I'll yield——

Ms. CREEDON. Sorry, Senator, I completely agree with my colleagues, but I want to add one additional concept to this. This is the idea of providing the President adequate decision time. This is one of the reasons why the nuclear command and control, as well as our early warning systems, are absolutely essential. I know we've talked a lot today about the need to modernize our nuclear delivery systems and our nuclear command and control, but the other piece of this is our early warning systems, where they're mostly overhead, there's some ground, but they, too, are looking at the need for additional money-funding support. Those are the systems that actually provide the President and the national command authority with the additional time needed to make an informed decision in a time of crisis.

Senator CRAMER. Thank you very much.

Thank you, Mr. Chairman.

Chairman INHOFE. Thank you, Senator Cramer. I agree with you, everyone should have that experience. They'd feel differently about it, perhaps.

Senator Kaine.

Senator KAINE. Thank you, Mr. Chairman.

Thank you, to the witnesses.

I want to just open by just making a comment about the news from Vietnam today, since we're having a discussion about our nuclear posture. I, for one, am happy that, if the President did not feel like there was a deal to be had that was in America's interest,

that he walked away from the table. No deal is better than a bad deal. I think the way they ended it—apparently, each talking about the possibility of continuation of discussions, is very positive. So, I just want to put on the record that, when I read the news and I read the circumstances, I was relieved that we walked away. It was pretty clear we weren't going to get the first thing that we need to get to determine whether North Korea is serious at all, which is a disclosure of its arsenal and assets. If they disclosed, they might be serious. Until they do that, we have no way of knowing whether they're serious.

So, I will say, while I support this Administration walking away from a bad deal or a scenario where no deal is possible, I really, really object to the characterization about the death of the Virginia student, Otto Warmbier, as something that Kim Jong-un didn't know about. It reminds me of what the Administration said about the assassination of the Virginia resident journalist, Jamal Khashoggi, that Muhammad Bin Salman (MBS) didn't know about it, or what the Administration has said about Russian election interference, that Putin didn't know about it. I have no idea why this President continues to be the defense lawyer for dictators who do horrible things, contrary to the advice and the intelligence of our own intelligence community. Our intelligence community is telling us what Putin knew about the election, what MBS knew about the murder of Jamal Khashoggi, and what Kim Jong-un knew about the brutalization and murder of Otto Warmbier. I don't know why the President would want to come to the aid of people who have done these horrible things.

I want to ask about command and control, because I want to dig into this. I think we're nervous about the various points that you all make, the antiquated nature of the command-and-control system. General Hyten gave us good testimony about that. He did say, "You don't need to worry, I've never had gaps in command and control and communications." So, he gave us an assurance. Before I ask you, "What should we be looking for, what kind of investment should we be making, is our acquisition system such that we can do the right thing?"—is there any virtue at all to an antiquated system, that it might be harder to cyberhack into? I mean, if we could keep the antiquated system going, is it a little more invulnerable to the kinds of digital hacking that's going on now, or is that sort of a pipedream?

General KEHLER. Senator, I'll take a stab at that. With tongue in cheek, those of us that have looked at this say, "Well, there's sort of a good-news/bad-news story here." But, I think that the bad news outweighs the good news in that case, because I think "antiquated" is the operative word here. And yes, while antiquated things may provide some additional cybersecurity at a system level, I think it's almost a wash.

Senator KAINE. Yeah.

General KEHLER. So, I believe that this is another area where we have to get on with both investment in things that are necessary now while we look at the future and apply sort of all of the lessons that are being learned, in the commercial world and elsewhere, about how you really provide resilient systems against cyberattacks or other kinds of attacks, that will be unique—in addition to

cyberattack, unique to the nuclear command-and-control part of our enterprise.

So, yes, I take the point. Yes, some of those older systems don't have the same open portals into them, because they're antique. But, I think they are antique, at the end of the day, here, and they will not last forever. In some cases, I think they're on a thin edge now.

Senator KAINE. If the two of you agree with that point, that the antiquated is worse than some invulnerabilities that it may present, what should we be looking for, as a committee, as we're working on the NDAA, in terms of the command-and-control investment, recapitalization?

Mr. MILLER. When I entered the Pentagon in 1979, and we started to modernize the strategic systems under Harold Brown, and later under the Reagan Administration, we had new systems, and we had robust and redundant systems. Now we don't have as much redundancy or resilience. I think what you should be looking for is, are the sensors survivable? Are the communications lanes survivable? The aircraft platforms that we have, the TAKE Charge and Move Out (TACAMO) aircraft and the doomsday plans are quite old. Their communications circuits have been upgraded, but the planes are old. The communications circuits are vulnerable, and the resiliency isn't there. So, I would focus on those elements and on the warning systems.

Senator KAINE. Ms. Creedon?

Ms. CREEDON. I would add on the redundancy and really focus on how to make sure that these new systems not only are resilient, but we also have multiple redundant paths so that, if a path fails or is compromised, that we have other opportunities to maintain that connectivity between our forces. In some instances, this connectivity is going to have to be a provider of both nuclear forces and will also be involved in a conventional force. I don't think this is something we should be afraid of, frankly, but I think we need to really fully explore all of the different opportunities for the redundancy as well as the resiliency. Because sometimes I think we lose that.

Senator KAINE. Thank you so much.

Thanks, Mr. Chairman.

Chairman INHOFE. Thank you, Senator Kaine.

Senator Hawley.

Senator HAWLEY. Thank you, Mr. Chairman.

Thank you, to all of you, for being here today. Forgive me if one or more of my questions is slightly redundant, having not been here for the earlier part of the hearing.

I want to ask you about some of the recommendations of the Nuclear Posture Review and low-yield tactical nuclear weapons, such an important part of our modernization efforts, particularly in light of what we heard from this Committee earlier this week, in light of what Russia and China are doing, and our need to modernize our nuclear triad in order to maintain our competitiveness with our near-peer competitors.

So, the Nuclear Posture Review, of course, called for the United States to deploy a low-yield nuclear warhead. Shortly thereafter, then-Secretary of Defense James Mattis told our counterpart in the

House, the House Armed Services Committee, that there's really no such thing as a tactical nuclear weapon, and went on to say that any nuclear weapon used anytime is a strategic game-changer.

Let me just ask you, General Kehler and Mr. Miller. Can you help us understand how deploying low-yield weapons, as recommended by the NPR, will actually help reduce the risk of escalation, not increase it?

Go ahead, General.

General KEHLER. Senator, I think you have to understand that the objective, here, is to make sure an adversary understands that there's nowhere they can go to gain an advantage, so there's no part of the military spectrum, here, particularly around the nuclear threshold, that they can go that won't be met by a credible response. The concern was that, if the Russians intend to go to some place around the nuclear threshold, or cross the nuclear threshold with low-yield weapons, because they believe that the only way the United States can respond is with a high-yield weapon, and somehow we would be deterred, that there is a hole there, a gap that we need to make sure that we are addressing. That was what led to the notion that, not only would we be able to offer a President a range of conventional ways to respond to such a low-yield use, but we could also respond with a low-yield weapon of our own.

Mr. MILLER. If I could follow up on that. I think it's critically important, as we've been talking about an adversary's view of nuclear weapons, that we noticed that the Russian buildup of low-yield tactical nuclear weapons began about 10 years ago, maybe 15 years ago, along with the doctrine and the exercises that implement that. This was done in full recognition of our then-and-now current nuclear capability. So, somehow the Russian general staff seems to perceive we lack an adequate response. They must have sold that to the political leadership, because they've invested a lot of money in that.

The low-yield Trident weapon is a counter to their thought that they could use tactical nuclear weapons on the battlefield. Secretary Mattis was right that the Russians seem to think they can use them in a tactical sense. What a Trident says is, "We have an escalatory response that's not high-yield, that is credible, and, Mr. Putin, are you prepared to bet Mother Russia and the possibility of endless escalation against the use of a tactical weapon to achieve a land grab in North Atlantic Treaty Organization (NATO) Europe?" I think that's the essence of this issue.

Senator HAWLEY. Thank you very much for that. Can I just pick up on that last point? The National Defense Strategy talks a lot, and worries a lot, about the possibility of a fait accompli, aggression that changes facts on the grounds that then is very hard for us to reverse, given the time it may take to move sufficient forces in theater, et cetera. Can you just say a word about how having these weapons and these options in our arsenal, these low-yield tactical weapons, might help deter and prevent a fait accompli from happening so that we don't get into that position?

General, maybe I'll start with you.

General KEHLER. Senator, there have been some things written over the last several years, some books, as a matter of fact, about what's red's theory of victory, here? What is their strategy? What

are they aiming toward? And you've identified the pieces that you can find in open literature about what it is that the Russians and the Chinese, in their own way, are trying to achieve. And that's, present us with a fait accompli in their own neighborhood, make the costs and risk of intervention too high, from deploying strategic threats, not only nuclear threats, but threats against the Homeland, for example, through cyberspace, and let us know that the risk would be very great to intervene. I think one of the major changes is being able to threaten the Homeland below the nuclear threshold, through cyberspace. That's a part of their strategy. Nuclear weapons are foundational to their strategy.

As we think about what does it take to deter such a strategy and make it ineffective, we need to make sure that there isn't some place on this spectrum that they can go, where they believe we do not have a credible way to respond. That has led to some of these conversations that includes our own deployment of low-yield nuclear weapons, which, by the way, is not new for us. We've had low-yield nuclear weapons in the past. The question is the small numbers and the way we'll deploy those. I think, in every case, it's done strategically to enhance our deterrent.

Mr. MILLER. If I could just carry that one step further. I think, putting it simplistically, deterrence involves going to a potential enemy and taking options out of their basket. This is one way of taking their "escalate-to-win" strategy out of their basket. As General Kehler says, deterrence now is highly complex. It involves a mix of space and cyber and conventional and nuclear capabilities. But, we have to take the options out of the Russian basket, one at a time. This is a way of doing that without trying to field our own tactical nuclear forces that we used to have and don't have the need to do anymore.

Senator HAWLEY. Thank you very much.

Thank you, Mr. Chairman.

Chairman INHOFE. Thank you, Senator.

Senator Jones.

Senator JONES. Thank you, Mr. Chairman.

Thank you all for being here today. Very interesting panel.

Ms. Creedon and Mr. Miller, you have both said that you think that the United States should be trying to get other nuclear-armed nations to the table to discuss arms control. How do we do that? What kind of levers do we have? What kind of leverage does the United States have to bring in some of these nations to the table and let's have a discussion about what we're doing and where the future is headed? How do we do that?

Ms. CREEDON. So, Senator, I'll start with the Indo-Pacific, because that's the most challenging region. I think we start that by having serious conversations with our allies in the region. They know this region, they live in this region. Have conversations with Australia, with Japan, with Korea about how to be effective with not only using them in these discussions, but how to go forward with China on these talks. It's going to take a while, but it's got to have the participation of our allies in this.

The other thing is, China still has far fewer warheads and delivery systems than does Russia. So, we have the ongoing effort to try and figure out how to approach the Indo-Pacific region—and, frank-

ly, it could be a very new methodology for arms control. It may not be limitations, it may just be even things like transparency. That would be a substantial leap forward in that region, because we know very little about the Chinese systems. So, there are ways to do that.

But, in the meantime, because the United States and Russia still continue to have the bulk of the nuclear weapons, we can't lose sight of continuing to have discussions, having new discussions with Russia on the nonstrategic and New START.

Senator JONES. Great.

Mr. Miller?

Mr. MILLER. Senator, I think that we have tried, through unofficial means, for well over a decade, to engage the Chinese, and the Chinese are not interested. The Chinese know we would like them to be more transparent, and they have maintained an opacity about their force. They have the most dynamic ballistic missile development and deployment program in the world. They have created barriers to open discussions with what they are building in the created islands in the South China Sea. If, at some point, the Chinese leadership decides it's in their interest to begin a discussion with us, I think they will. But, we sometimes labor under the illusion that because we think it's a good idea, another government will agree to that. I'm afraid that we are not there right now with Xi Jinping and his leadership.

Senator JONES. Is there anything that we can do to try to convince them, though? Is there something out there that you might have in mind, other than talking to our allies? Is there something that we can show, demonstrate, or do? I agree, I share the frustration. I understand the frustration that you can always take that horse to water, but you can't make him drink. But, anything that we've got, any leverage at all?

Ms. CREEDON. One of the levers that I think we could use, and could use effectively—actually, maybe there are two things. One is how to get other things in the context of this. So, not just arms control, but maybe economics, maybe technology-sharing, maybe other avenues of cooperation to kind of break the ice, to get into this arms control. So, not take it on frontally, but go at it in some other ways. Maybe there were ways to do space cooperation, in terms of human spaceflight. We foreclosed a lot of our opportunities with China, and I think we just need to be way more creative, in terms of how to open that door.

Senator JONES. Great.

Mr. MILLER. Senator, I will be the pessimist in this one. We have been restrained in our nuclear modernization program for two decades. The Chinese have been running ahead. We have been restrained in what we do in outer space, and there are two new publications out from the Department of Defense in the last 2 months that show how China has moved ahead with offensive and defensive space. What we need is a change of attitude in the Chinese leadership that it is not looking to expand and become a more regional power, but a power that will work with us. And I can't predict when that might happen, sir.

Senator JONES. All right. Real quick. My time is running out. But, we've got new tensions between India and Pakistan. There is

obviously a lot of concern whenever that happens. India has a "no first use" policy. Pakistan does not. What's that situation like now? What do you perceive? Should be concerned? What should the United States be doing about it?

Mr. MILLER. I think that's the most dangerous situation in the world. I think that the way that the two countries interact has the potential to create a nuclear war. There have been various kinds of outreach for two decades, to both governments, to talk about nuclear strategy, nuclear policy. But, I think we've made more headway with the Indians than the Pakistanis. But, I would say that both countries remain a source of significant worry for me, personally.

Senator JONES. Right.

Ms. CREEDON. I agree with that. Both of them are increasing their nuclear arsenals, not only in terms of numbers, but also in terms of their overall capabilities. It's a very dangerous part of the world. So, whatever the United States can do to be an honest broker, or find others to be honest brokers, is really essential. This is a very dangerous situation.

Senator JONES. Right.

Well, thank you all.

Thank you, Mr. Chairman.

Chairman INHOFE. Thank you, Senator Jones.

Senator Tillis.

Senator TILLIS. Thank you, Mr. Chairman.

Thank you all for being here.

I apologize to all of y'all for not being here in person. I think some of you know the drill here. We have three committees going on simultaneously. One was a markup. So, I also apologize, Mr. Chair, for not being here for the whole hearing.

I have one question that is probably off-subject or hasn't been asked to this point. Then I want to come back to a few comments in the opening statements. When we get into the discussion about our current arsenal, we talk about some of it aging, unlikely to be deployed. Yet, some view decommissioning it as a sort of unilateral disarmament. Where are you all on that? I think we have certain assets that I personally believe would be better positioned for future investment into the same enterprise. So, just down the line, where are you all on that issue?

Ms. Creedon, we can start with you.

Ms. CREEDON. Senator, right now our deterrent is, in fact, safe, secure, and reliable, but it's old. And I mean that from the warheads, from the delivery systems, from the platforms. So, they all need to be upgraded. There's a good start. The start has happened, some 10 years ago. The life-extension programs on the warheads are going along. The second one was just finished, another one has started up. There's also another one that's in the works. There's plans for more. So, those things are what need to be supported. The science that underpins that needs to be supported, as well as the actual funding for the delivery systems. As these things age out, they will be retired, but it's a very close line between when they age out and when the new ones come in. There's no room for delay.

Senator TILLIS. Thank you.

Mr. Miller?

Mr. MILLER. Senator, the various parts of the triad are aging. The Air Launched Cruise Missile-B (ALCM–B) was deployed in about 1980, with an expected lifespan of 10 years. It's still there. It must be replaced soon, or retire without replacement. If you don't replace it, the B–52 part of the triad and the standoff system is gone.

The SSBNs, the *Ohio*-class magnificent submarines, as they retire in series, in the late 2020s and beyond, will have served longer than any U.S. ballistic missile submarine ever. The problem there is, the reactor gets brittle, the piping gets brittle, the submarines become unseaworthy. The Minuteman system has been around since the 1970s. Then there's the command-and-control system, which we spoke about, sir, when you weren't here.

We should have modernized this in the Bush-43 Administration, and we did not, for a variety of different reasons. But, the fact is, the systems are aging out and will retire, with or without replacement.

Senator TILLIS. General, as you answer that question, in your opening comments you talked about stepping away, basically taking one of the legs of the stool out, making it a two-legged stool with ICBMs not being a part of our strategy. Isn't some of our modernization also undermining that component of the triad?

General KEHLER. It is, unless we decide to invest in ICBMs again. There's a proposal, of course, as part of the modernization effort, to invest in the ICBM force. I would strongly encourage you to approve that.

I would take the same kind of an approach. I agree with Madelyn that the current force is safe, secure, and effective. I had to certify to that. It's already been 5 years ago since I took my uniform off. But, I believe that's the case. Now I believe that General Hyten testifies to that, as well. But, I think that there's an important point here. We need to remind ourselves that these systems are really at the end of their service lives. One of the things that we talk about, particularly in the nuclear business, is our systems were built in such a way that they always have margin at the end of that life. My view is, we're about out of margin here.

Senator TILLIS. Outside of the margin.

General KEHLER. And so, I think we're out of time. If we don't act, a friend of mine has been whispering this in my ear for many years, that we are "rusting to zero" if we're not careful, here.

Senator TILLIS. Thank you.

In my final minute, I'm kind of curious—Ms. Creedon, I heard your comments about New START. I tend to agree with it. But, we've got this odd relationship with Russia, where, on the one hand, it makes sense to do that; on the other hand, they're virtually violating every other agreement we have. How do we reconcile the two?

Ms. CREEDON. Well, it is true, and it is a hard thing to reconcile. But, this is a treaty that is extraordinarily important to both the United States and to Russia, and both sides are in compliance, and it really should be extended. It's a simple act to extend it. Both sides just simply have to agree to extend it. When that extension

happens, then there is time to have the discussions, which we must have, about the nonstrategic systems.

Senator TILLIS. Thank you.

Do the two of you agree?

Mr. MILLER. I think it's necessary, but not sufficient. I do think it's time to bring the other systems in, and I would like to see some sort of a deal whereby we agree to extend it, on the condition that real negotiations take place to bring in the exotic systems and the shorter-range systems.

Senator TILLIS. That's where I am.

General?

General KEHLER. I would agree that it's effective today. I believe that it should remain as long as it's effective. I would like to see it extended, but I also believe that, as part of that process, we need to wrap some of these other concerns into it.

Senator TILLIS. Thank you.

Thank you, Mr. Chair.

Chairman INHOFE. Thank you, Senator Tillis.

Senator Duckworth.

Senator DUCKWORTH. Thank you, Mr. Chairman.

I'd like to begin by thanking the witnesses for your testimony today. The perspective and experience you bring to this topic will greatly assist the members here in our task of ensuring long-term security and prosperity for our country.

On Tuesday, this Committee held an open hearing with the commanding general of U.S. Strategic Command. In that hearing, I asked General Hyten about his views on non-nuclear strategic systems. I want to ask the same thing of our witnesses here today. I do agree, we need to modernize our nuclear arsenal, but I want to talk about the non-nuclear strategic arsenal.

Could each of you briefly discuss your views on the potential effectiveness of non-nuclear strategic weapons? Would increased investment on our end in hypersonics, cyber, conventional, prompt global strike, or electronic warfare weapons create a credible deterrent against Chinese or Russian nuclear threats? Would they deter other nuclear threats, such as Iran or North Korea?

Ms. CREEDON. The answer is yes. I mean, to have an effective deterrent, we have to be able to deter and defend in all regimes and in all domains. So, investment in all of those assures that we have the technological prowess to be ahead of the game in the future.

Senator DUCKWORTH. Thank you.

Mr. MILLER. Let me agree with Ms. Creedon and say that I am a strong believer in Bomb Live Unit (BLU) squad vehicles and hyperglossy glide vehicles. The Committee has talked, for many, many years, about the problem of area denial. I think these are the classic weapons to break down the door in an area denial situation, where you destroy an enemy's anti-ship systems and anti-air systems and allow us to move back in. So, I firmly support those initiatives.

Senator DUCKWORTH. Thank you.

General?

General KEHLER. Senator, combat experience has shown that we can now use conventional weapons in places and in circumstances where perhaps, once, nuclear weapons were the only thing that

would have been possible. So, I fully support, and strongly support, the addition of conventional alternatives for a range of options we would offer to decisionmakers if we were considering sort of extreme circumstances.

But, what conventional systems cannot do, is serve as a large-scale replacement for nuclear weapons. That's for a couple of reasons. One is, they do not have the same deterrent value in large scale. Second, when you look at the potential target bases out there that are involved in some of our strategic concerns, we don't have sufficient conventional weapons in the entire inventory to cover those kinds of target bases.

So, they can't be a large-scale replacement for nuclear weapons, but, on a case-by-case basis, we have found that conventional weapons can be far more effective, far more useful, and offer far more options for decisionmakers.

Senator DUCKWORTH. Thank you.

Shifting gears with just a bit, I wanted to discuss the current state of arms limitation agreements. Obviously, the trend in recent years has not gone in the right direction, and there's much discussion on trying to revitalize established bilateral arms limitation agreements with our global competitors, but—on that idea of multilateral arms reduction. We've discussed this a little bit already here today. I want to hear from each of you your opinions on this topic. Should we be looking to simply keep our legacy arms limitation agreements on life support, given historically high levels of mutual distrust, or would a multilateral framework among, say, the United States, Russia, China potentially breathe new life into arms control nonproliferation? You sort of touched on this already. But, is this something where we need to sort of do more than just maintain what we've got and perhaps be a little bit more bold?

Then, I'd like to hear also about the current sort of policy debate surrounding nuclear weapons, in terms of the links between nuclear policy and posture and space and ballistic missile defense, as potential examples. I want to make sure that we're discussing, in the media and in general conversation, the linkages between the different systems in an intelligent way.

So, let's start with the bilateral/multilateral agreements.

Mr. MILLER. Well, I think that the nonproliferation treaty, which is a multilateral—190 nations, is truly important. It's in the security interests of all of those nations, and it's something we ought to continue to preserve.

I think that if we can come up with regional stability talks, that would be a good thing to do; rather than having Chinese aircraft come within 2 or 3 feet of our own, that we have an agreement in place. They need to respect that agreement.

So, I think that, as far as nuclear talks, right now it really is between the United States and Russia. Where Russia is violating treaties, there are places we absolutely should maintain where we are. They may be using chemical weapons in the United Kingdom and in Syria. We should not be breaking the chemical weapons treaty. We should be maintaining the Vienna document, where we are transparent on our exercises.

I'll yield to colleagues.

Ms. CREEDON. I'll just go back to New START. That is the treaty that is still alive, it's well, it's being enforced, it's working on both sides. But, the rest of the bilateral, they're at risk. There's not good cooperation on both sides. But, we have to figure out ways to go forward. The next avenue really is on multilaterals and how you think about multilaterals. So, while I would probably admit that, in some respects, arms control is in a period of hibernation, we have to figure out how to wake it up over time.

Senator DUCKWORTH. Thank you.

Ms. CREEDON. Oh, and on your last thing, just looking across the board on deterrence is absolutely essential. All of the instruments in the tool kit.

Senator DUCKWORTH. Thank you.

Chairman INHOFE. All right. Well, thank you, Senator Duckworth.

Thank all three of you, for being here, and the straightforward way that you're answering the questions. It's been really good. In fact, there's a lot of the same conclusions we come to with our uniformed people. It's been a very helpful committee hearing.

Thank you very much.

We are adjourned.

[Whereupon, at 11:21 a.m., the Committee adjourned.]

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