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Chairman Rogers, Ranking Member Cooper, members of the Subcommittee, thank you for opportunity to testify on the role, structure, and posture of U.S. nuclear forces. I am grateful for the consistent attention and support you contribute to the critical mission of sustaining a safe, secure, and effective nuclear deterrent capability.

OBJECTIVES OF U.S. NUCLEAR POLICY

As Assistant Secretary of Defense for Strategy, Plans, and Capabilities, I am focused on connecting the ends, ways, and means of U.S. defense policy. This includes ensuring that our nuclear forces, posture, and employment strategy fully support U.S. nuclear policy objectives – that we have what we need to secure our vital interests. It also includes greater ability to understand how nuclear weapons fit within the overall set of DoD operations and capabilities.

The key objectives of U.S. nuclear weapons policy are stated in the 2010 Nuclear Posture Review (NPR) and the 2013 Report on Nuclear Employment Strategy of the United States. While working to create the conditions necessary to realize the peace and security of a world without nuclear weapons – an ambitious goal that will not be reached quickly, the United States will sustain a safe, secure, and effective nuclear arsenal, for as long as nuclear weapons exist. Our nuclear forces and posture serve to maintain strategic deterrence and stability, strengthen regional deterrence, reassure U.S. allies and partners, and provide the means to achieve U.S. and allied objectives if deterrence fails.

ROLE OF NUCLEAR WEAPONS IN U.S. DEFENSE STRATEGY

Within our broader National Security Strategy, the fundamental role of U.S. nuclear weapons is to deter nuclear attack on the United States, our allies, and partners. Our nuclear deterrent is the ultimate protection against a nuclear attack on the United States, and through extended deterrence, it also serves to reassure our allies of their security against regional aggression. It also supports our ability to project power by communicating to potential nuclear-armed adversaries that they cannot escalate their way out of failed conventional aggression.

The basic mechanism of deterrence is to prevent aggression by deliberately modifying the cost-benefit analysis of the adversary. Our approach is to maintain a credible nuclear deterrent capable of convincing any potential adversary that the risk or adverse consequences of attacking far outweigh any potential benefit. Nuclear forces and other strategic capabilities connect to both sides of this equation. We maintain survivable response capabilities sufficient to ensure that no adversary contemplating nuclear attack could avoid the risk of incurring intolerably high costs in return. Similarly, an adversary cannot employ even limited nuclear attacks as a tool of coercion without risking escalation to levels that would negate any conceivable benefit. Finally, our homeland missile defense capabilities deny States such as North Korea and Iran any assured benefit of undertaking a limited ballistic missile attack.

Although remaining a critical element of our national security strategy, nuclear weapons play a reduced role now as compared to past decades. Our conventional forces are a significant component of our overall deterrence capabilities, and we plan to meet the nuclear deterrence requirements outlined earlier with the smallest possible stockpile. We have provided a strengthened "negative security assurance" to non-nuclear weapons States that are party to the Nuclear Non-proliferation Treaty (NPT) and are in compliance with their non-proliferation obligations. We are conducting warhead Life Extension Programs (LEPs) to sustain existing capabilities, rather than developing new nuclear weapons to support new military missions or provide new military capabilities. These sustainment efforts are structured to uphold the now

decades-long U.S. commitment to forgo nuclear testing, which has spanned multiple Administrations.

STRATEGIC DETERRENCE AND STABILITY

The strategic and geopolitical landscape presents a number of challenges that President Obama and previous Presidents have addressed by assigning missions to U.S. nuclear forces. First, we configure our forces and posture to maintain strategic stability in our deterrence relationships with Russia and China, in peacetime and in crisis.

Despite serious concerns in other areas of U.S.-Russian relations, both countries continue successful implementation of the New START Treaty. The New START Treaty verifiably reduces and limits the strategic arsenals of both nations, and is consistent with our objective of maintaining strategic stability at reduced force levels. Between September 1, 2014, and March 1, 2015, Russia reduced its number of deployed warheads accountable under the New START Treaty from 1,632 to 1,582, while the United States went from 1,642 to 1,597. Over the same time period, Russia reduced the number of deployed and non-deployed Intercontinental Ballistic Missiles (ICBMs), Submarine-Launched Ballistic Missiles (SLBMs) and heavy bombers from 911 to 890, while the United States reduced its deployed and non-deployed ICBMs, SLBMs, and heavy bombers from 912 to 898. Both sides are obligated to reduce to no more than 1,550 deployed strategic warheads and 800 strategic delivery vehicles, by February 2018.

We maintain several ongoing security dialogues with China, and we continue to express our interest in realizing potential mutual benefits of increased bilateral transparency and deeper engagement regarding nuclear weapons and other strategic issues.

EXTENDED DETERRENCE AND ASSURANCE

The United States remains firmly committed to the extended deterrence and assurance mission of our nuclear forces. The primary objectives of extending deterrence are to assure allies of U.S. commitments to their security, and to discourage potential adversaries from undertaking nuclear-backed coercion of our allies and partners. Effective assurance also supports our nonproliferation objectives by demonstrating to those same allies and partners that they need not pursue nuclear arsenals of their own.

Our commitment to NATO is firm. Nuclear weapons remain a core component of the NATO Alliance's overall capabilities for deterrence and defense, and, as articulated in the 2010 Strategic Concept and the 2012 Deterrence and Defence Posture Review, NATO will remain a nuclear alliance for as long as nuclear weapons exist. Current Alliance nuclear force posture meets the criteria for effective deterrence and defense. The strategic nuclear forces of the Alliance provide the supreme guarantee of the security of the NATO Allies, and the United States provides further support with forward deployment of B61 bombs for both U.S. and Allied dual-capable aircraft.

Our commitment to extended deterrence and assurance is real and tangible in Northeast Asia as well. There too, our strategic nuclear forces underwrite the security of our allies. And there too, maintaining the ability to deploy nuclear weapons globally with dual-capable fighter aircraft and bombers bolsters the credibility of our deterrent.

In the case of each extended deterrence and assurance relationship, the United States leverages formal alliance security mechanisms for consultation on strategic defense issues. Within NATO, we participate in the Nuclear Planning Group and the High-Level Group, which I chair. Similarly, the United States works with the Republic of Korea through the Extended

Deterrence Policy Committee (EDPC), and with Japan through the Extended Deterrence Dialogue (EDD). These bodies contribute to alliance cohesion and effectiveness by providing fora to discuss and formulate nuclear policy, and to assess and prepare to counter threats.

We are increasing DoD's focus on planning and posture to deter nuclear use in escalating regional conflicts. The goal of strengthening regional deterrence cuts across both the strategic stability and extended deterrence and assurance missions to which our nuclear forces contribute. Associated efforts include enhanced planning to ensure options for the President in addressing the regional deterrence challenge.

EFFECTIVE DETERRENCE

Success in these mission areas means maintaining effective deterrence. Effective nuclear deterrence requires that our strategy is credible. It requires nuclear forces postured to support that strategy. Effective deterrence must be sustained over time. And effective deterrence is stable and robust. Let me speak briefly about each of these.

Effective deterrence requires credibility

First, effective deterrence requires credibility. We sometimes distinguish between the ability to deter and the ability to achieve our objectives if deterrence fails, but the two are in fact inextricably linked. Deterrence is most effective when underwritten by forces, posture, and strategy that can credibly succeed in the event deterrence fails. At the opposite extreme, a deterrent without credibility would be no deterrent at all.

The current U.S. nuclear weapons employment strategy supports credible deterrence by sustaining a flexible range of plans and capabilities to provide options to the President in the

event deterrence fails. Preserving credibility in this way does not mean lowering the very high threshold for nuclear weapons use – the President would only consider their employment in extreme circumstances to defend our vital interests. But if that threshold is crossed, we and any potential adversary must be assured our systems will function as expected to achieve planned effects.

Effective deterrence requires capabilities

Effective nuclear deterrence also depends on maintaining forces and posture that enable and protect responsiveness, flexibility, and survivability. This remains best served by sustaining a full Triad with a range of nuclear explosive yields and delivery modes.

Each leg of the Triad contributes unique characteristics to the overall force. Strategic submarines (SSBNs) provide maximal survivability. Current U.S. nuclear posture preserves survivability by maintaining a continuous SSBN at-sea presence.

Land-based ICBMs provide the most rapid response capability, while maximizing Presidential decision making time and preventing accidental launch. Current U.S. nuclear posture preserves that responsiveness and reinforces crisis stability by maintaining most ICBMs on alert. The ICBM force complicates the planning of any adversary contemplating a disarming counterforce strike by vastly increasing the required scale of such an attack. For regional adversaries with smaller nuclear arsenals, the challenge of even targeting our ICBM force is insurmountable.

Nuclear-capable aircraft that can be forward-deployed provide the United States with flexibility and visibility that supports strategic deterrence, extended deterrence of potential

adversaries, and assurance of U.S. allies and partners. The air leg represents the full Triad when used by the President to help signal resolve. In this capacity, these aircraft provide the President options for controlling and limiting escalation throughout all stages of a potential conflict.

The combined effect of all three legs is to force any adversary seeking to negate our deterrent to invest in multiple expensive capabilities, including large-scale hard-target kill capability, advanced anti-submarine warfare (ASW) technology, and extensive, multi-layered air defense. The scale and complexity of this task protect the long-term survivability and credibility of our deterrent. Sustaining a full Triad also enables the policy objective of maintaining the ability to hedge effectively against failure of any single warhead or platform, and against shifts in the strategic and geopolitical environments.

Effective deterrence must be sustained

There are three key elements to sustaining effective deterrence over time: A viable sustainment and modernization plan, stable funding, and consistent focus. The President has opted for a sustainment and modernization program that is consistent with his commitment to retain a safe, secure, and effective deterrent for as long as nuclear weapons exist. This plan focuses on modernizing the platforms, delivery systems, and weapons of our current Triad to credibly preserve military capabilities in the face of evolving threats. Preserving these capabilities means preserving a range of options for this President and future Presidents.

Our plan is also consistent with the Administration's policy objective of reducing the role and number of nuclear weapons in U.S. defense strategy. It is not, as some have claimed, a nuclear weapons buildup. On the contrary, the number of nuclear weapons in the United States is the smallest it has been since the Eisenhower Administration, and the number of deployed nuclear warheads will continue to go down as we and Russia both reach the New START Treaty limit. Furthermore, our approach to warhead sustainment and modernization will enable additional reductions in the non-deployed hedge force.

The 3+2 stockpile plan remains the Administration's long-term approach to maintaining weapons for an effective nuclear Triad at reduced force levels and reduced cost. As envisioned, the future stockpile plan will include three interoperable nuclear explosive packages for ballistic missiles and two air-delivered warheads, referred to as the "3+2 stockpile strategy." The 3+2 strategy addresses stockpile obsolescence and meets the policy objectives of sustaining deterrence through a smaller stockpile with fewer weapon types and a modernized, responsive nuclear infrastructure capable of addressing technological and geopolitical surprise. Making nuclear explosive packages interoperable on different delivery platforms will reduce the number of different systems that must be maintained and serviced, while providing sufficient diversity among deployed systems.

We must achieve and maintain the necessary funding balance among three critical areas to allow continued certification that our nuclear weapons remain safe and secure, and to sustain effective deterrence over time: stockpile system sustainment and life extension; stockpile science and engineering; and sustaining and modernizing the aging nuclear enterprise infrastructure. Without the support for current and future funding requests, there would inevitably be impacts in one or more of these areas. Sequestration presents the greatest threat to the viability of our sustainment plan, and I'm grateful for the Committee's support in seeking relief for both the Department of Defense and the Department of Energy.

Sustainment and modernization of the Triad will require significant resources over the next decade and beyond, but the nuclear mission is the highest priority mission in the Department of Defense and we must prioritize it accordingly. During his confirmation hearing, Secretary Carter called the nuclear enterprise "a bedrock of our security" and "a foundational responsibility of the Department of Defense." The President's budget reflects this prioritization, with \$142B requested to recapitalize, sustain, and modernize the nuclear enterprise over the next five years. This includes nearly \$8.5B in enhancements as a result of findings by last year's Nuclear Enterprise Reviews. These budget enhancements fall in several key areas: additional oversight to clarify the nuclear deterrent leadership structure and reduce administrative burdens imposed on the forces; increased investment in the nuclear deterrent enterprise to improve and sustain current equipment and infrastructure, and for increased personnel and training; and improvements in the way we conduct inspections, ensure the reliability of our nuclear personnel, and provide for security of our nuclear weapons.

Consistent focus is the third key element of sustaining effective deterrence over time. Last year, then-Secretary Hagel created the Nuclear Deterrent Enterprise Review Group (NDERG) to help maintain senior-level focus on the nuclear mission, and to integrate all the elements of the nuclear force into a coherent enterprise. He asked Deputy Secretary Work to lead this effort. Establishing the NDERG was part of a serious and vigorous DoD response to the findings of the Nuclear Enterprise Reviews. Secretary Carter shares former Secretary Hagel's commitment to maintaining this focus and ensuring real near-term improvements in nuclear force sustainment and morale.

Effective deterrence is stable and robust

Our sustainment and modernization plan is designed to support effective deterrence by maintaining a deterrent capability that is stable and robust, rather than one that is necessarily reactionary to every move or development by potential adversaries. Russia's recent behavior, which currently poses one of our most pressing and rapidly evolving strategic challenges, underscores the importance of stable and robust deterrence. We are confronted with Russia's occupation and attempted annexation of Crimea, continuing aggressive Russian actions in eastern Ukraine, Russia's increasingly aggressive nuclear posturing and threats, including the prospect of nuclear weapons in Crimea, and its violation of the Intermediate-Range Nuclear Forces (INF) Treaty.

The Administration's response to Russia's actions must be integrated across all instruments of national power, including diplomatic, economic, and military. As you are aware, we have already taken a number of military steps to strengthen security in NATO and reassure our allies. The DoD continues to develop and refine potential military responses to Russia's violation of the INF Treaty. Because the Administration continues to formulate a comprehensive diplomatic, economic and military response to Russia's violation I cannot be more specific regarding those military responses at this time. I can say, however, that our patience with Russian intransigence regarding its violation of the INF Treaty is not unlimited. As an Administration, we are committed to ensuring Russia does not achieve a significant military advantage from its violation.

Russia's violation of the INF Treaty does not compromise our capacity for strategic deterrence or extended deterrence, and it will not compromise our commitment to the security of our NATO Allies. Our sustainment and modernization plan was specifically designed to hedge against geopolitical risk, including increasing strategic competition with Russia.

Although we must continue to monitor closely and assess the modernization programs of nuclear-armed States, there is currently no need for the United States to develop a new nuclear weapon. There is no military requirement for such a weapon, precisely because the current Triad continues to provide the flexibility and range of capabilities we need for effective deterrence. Rather than diverting resources into pursuing new weapons, it is vital that we continue supporting the current plan for sustaining and modernizing our existing nuclear forces.

CAPABILITIES TO UNDERWRITE EFFECTIVE DETERRENCE

Now let me highlight specific elements of our sustainment and modernization plan, and describe the critical capabilities they contribute to our overall nuclear forces.

Sustaining the sea leg

Our plan for sustaining the survivable sea-leg of the Triad includes needed replacement of the OHIO-class SSBN, and sustainment of the Trident II D5 SLBM and associated warheads. The OHIO-class Replacement Program and supporting systems require adequate resources and a stable, predictable funding profile to ensure an on-time construction start in Fiscal Year (FY) 2021 and to meet the first deterrence patrol need date of FY 2031. This new class of submarines will have a service life that will enable patrols into the 2080s, and will remain survivable even as adversary ASW technology advances and proliferates.

The Navy is conducting a Trident II D5 missile Life Extension Program (LEP) to sustain it through at least 2042 in order to support the extended life of the OHIO-class submarine. This program will also allow the Trident II D5 to be deployed on OHIO Replacement SSBNs.

The W76-1 SLBM Warhead Life Extension is well underway, with production now past the halfway mark and on track for completion in FY 2019. An expanded work scope for the W88 Alteration (ALT) 370, funded in the President's FY 2016 budget, will sustain it until an interoperable warhead replaces it under the 3+2 plan.

Sustaining the land leg

The land-based leg of the Triad also requires sustainment and recapitalization. The Air Force recently completed several modernization programs to sustain the Minuteman III ICBM force through the mid-2020s, and will need to address additional age-related concerns to sustain the missile through 2030. The Air Force conducted a Ground-Based Strategic Deterrent (GBSD) Analysis of Alternatives (AoA) to study a full range of concepts to recapitalize the ICBM force beyond the extended service life of the Minuteman III missile. DoD is currently reviewing GBSD acquisition planning and options for reducing programmatic risk.

The first interoperable warhead, the W78/88-1 LEP, was delayed to adjust to budgetary constraints and balance warhead production schedules. Once completed, it will provide both an ICBM warhead and an SLBM warhead. This is an important step towards a stockpile comprised of fewer weapons and fewer weapon types, that is nonetheless more responsive to technological and geopolitical surprise.

Sustaining the air leg

We need to take a number of steps to sustain the air leg of the Triad, and to preserve our overall flexibility and ability to adapt to an evolving strategic environment. We must ensure the continued viability of our current strategic bomber force through procurement of the Long-Range Strike Bomber (LRS-B); ensure dual-capability of the F-35; replace the aging Air-Launched Cruise Missile (ALCM); and complete the B61 gravity bomb life extension.

The Air Force continues to modernize its nuclear-capable bomber fleet to extend the life of the B-52 and B-2. The B-52, which comprises the bulk of our current strategic bomber force, will be up to 80 years old when its replacement is completed sometime after 2040.

The Long-Range Strike Bomber (LRS-B) is one of the Air Force's top three acquisition priorities and is currently in the development phase. It is critical for sustaining the capability to deliver both nuclear and conventional munitions in sophisticated and evolving "anti-access" threat environments. The F-35 is another of the Air Force's top three acquisition priorities. Like the LRS-B, the F-35 program will deliver capability that is needed for both the conventional and non-strategic nuclear missions. In both cases, the incremental cost of adding nuclear capability to the conventional platform is a very small portion of its total cost.

The Long-Range Stand-Off (LRSO) cruise missile is essential to ensuring our deterrent remains effective. It will be compatible with legacy B-2 and B-52 aircraft, as well as the future LRS-B. The LRSO is a necessary replacement for the current ALCM, which is the United States' only air-launched, long-range standoff nuclear capability. The ALCM remains effective but it cannot be sustained forever.

The LRSO plays a critical and multifaceted role in our strategy. It will be an essential element of our assured second strike capability, carried by a strategic bomber force that is survivable once alerted. The LRSO will ensure our ability to penetrate adversary air defenses far into the future, and preserve the ALCM's essential contribution to the range of strike options the President has for responding to a limited or large scale failure of deterrence. Without the LRSO our most comparable response option would require an aircraft carrying gravity bombs to overfly its target, putting both crew and mission at significant risk.

Preserving credible response capabilities in this way is an important aspect of sustaining an effective deterrent against nuclear attack. Bomber aircraft will continue to provide visible assurance to our allies that our extended deterrence guarantees are credible. LRSO-armed bombers demonstrate to our allies that adversary efforts to deny us access to their regions will fail. The LRSO will also provide a rapid and flexible hedge against changes in the strategic environment and against limitations of the other two legs of the Triad, including technological changes in adversary capabilities that might negate other elements of our strategic deterrent.

The penetrating LRSO cruise missile and the penetrating LRS-B provide complementary capabilities, and neither can fully substitute for the other. As a system-of-systems, they offer both quantitative and qualitative advantages. Arming a penetrating bomber with the LRSO multiplies the number of penetrating targets each bomber presents to an adversary seeking to deny access. Our potential adversaries' air defenses constitute a layered threat environment where different capabilities provide varied confidence levels of penetration. The challenge is further heightened by the need to be able to credibly challenge adversary defenses not just as they exist today, but as they evolve into the future. A penetrating bomber that can carry a penetrating missile imposes an extremely difficult, multi-azimuth air defense problem on our potential adversaries. It maximally expands the accessible space of targets that can be held at risk, and reduces the threat to our limited and expensive strategic platforms. Finally, the LRSO will ensure that the heavy bomber force offers an effective deterrent capability long after the aircraft's ability to penetrate diminishes.

Similarly, the B61 gravity-bomb provides capabilities that complement the cruise missile system, and neither can fully substitute for the other. The B61-12 LEP will sustain our ability to forward-deploy nuclear weapons with tactical aircraft as well as strategic bombers. It is a central

component of our commitment to extended deterrence and assurance, particularly in NATO. In its strategic role, the B61-12 is essential for sustaining the B-2's contribution to our nuclear forces until the LRSO is deployed. Finally, air-delivered gravity bombs provide the President unique flexibility in signaling resolve and controlling escalation due to the possibility of redirecting or recalling the aircraft up to the moment of weapon release above the target.

The B61-12 is also an important early step towards implementing the 3+2 plan. Four existing strategic and tactical variants of the B61 gravity bomb will be replaced with a single weapon design. Along with fewer weapon types and an attendant reduction in maintenance and surveillance, the end result will be significantly fewer weapons and lower net explosive yield in the stockpile without reducing our deterrent capabilities.

CONCLUSIONS

In summary, nuclear weapons play a critical role in our overall national security strategy, and will continue to play a critical role in any future strategy for as long as nuclear weapons exist. As a result, we have developed and are implementing a viable plan for sustaining and modernizing our nuclear forces. These capabilities support policy objectives by enabling options the President needs to reinforce the credibility of our strategy, and so enable effective deterrence. In order for the plan to succeed, we must also have commensurate and stable funding, and we must maintain consistent high-level focus on the nuclear mission. Sustaining stable and robust nuclear deterrence in this way allows a steady approach to the persistent and evolving strategic challenges we face today and will face in the years to come. Thank you for the opportunity to testify. I look forward to your questions.