



# DOCUMENTATION

**Document No. 1. Selections from Commander, United States Strategic Command (USSTRATCOM) ADM Charles A. Richard, Testimony before the Senate Armed Services Committee, March 8, 2022 (all emphases appear in original.)**

## INTRODUCTION

United States Strategic Command (USSTRATCOM) is the global combatant command (CCMD) responsible for Strategic Deterrence, Nuclear Operations, Global Strike, Joint Electromagnetic Spectrum Operations, Analysis and Targeting, and Missile Threat Assessment. In addition, the January 2021 Unified Campaign Plan (UCP) designated the Commander, USSTRATCOM (CDRUSSTRATCOM) as the Nuclear Command, Control, and Communications (NC3) Enterprise Operations lead. It takes a team of dedicated individuals to execute our mission set, and I am honored and privileged to lead the 150,000 Soldiers, Sailors, Airmen, Marines, Guardians, and Civilians dedicated to the DoD's highest priority mission.

I want to thank Secretary Austin and Chairman Milley for their leadership and continued support to the strategic defense of this Nation. USSTRATCOM is committed to Secretary Austin's integrated deterrence initiative and remains dedicated to his priorities of defending the Nation, taking care of our people, and succeeding through teamwork. I also want to thank Congress for your continued support to ensure USSTRATCOM is equipped with the resources necessary to maintain strategic deterrence on behalf of the Nation, our Allies, and our partners.

Since my last testimony, there should be no doubt we are contending with a rapidly changing and dynamic strategic security environment where potential adversary actions challenge us in ways we have not experienced in over 30 years. ***In September 2021, I formally declared the strategic breakout of the People's Republic of China (PRC) to the Secretary of Defense. A strategic breakout denotes the rapid qualitative and quantitative expansion of military capabilities that enables a shift in strategy and requires the DoD to make immediate and significant planning and/or capability shifts.*** The PRC continues the breathtaking expansion of its strategic and nuclear forces with opaque intentions as to their use. The recent test of an intercontinental ballistic missile (ICBM)-launched hypersonic glide vehicle (HGV) with fractional orbital bombardment (FOB) is just one example of these growing capabilities. Meanwhile, Russia conducted the invasion of Ukraine backing its actions with the coercive potential of the world's largest nuclear arsenal. ***The strategic security environment is now a three-party nuclear-peer reality, where the PRC and Russia are stressing and undermining international law, rules-based order, and norms in every domain. Never before has this Nation simultaneously faced two nuclear-capable near-peers, who must be deterred differently.***



I applaud Secretary Austin for his vision of integrated deterrence across the Joint Force, our Allies and partners as the foundation of the National Defense Strategy. ***Every operational plan in the DoD, and every other capability we have, rests on the assumption that strategic deterrence, and in particular nuclear deterrence, will hold. If strategic or nuclear deterrence fails, integrated deterrence and no other plan or capability in the DoD will work as designed. The Nation's nuclear forces underpin integrated deterrence and enable the U.S., our Allies and partners to prevent and, if necessary, confront aggression around the globe using all instruments of national power.***

Our operational requirements exist to execute Presidential directives and decisions we make today will have lasting strategic impacts on our ability to do so. Maintaining and strengthening deterrence for the long-term requires a modern infrastructure and industrial base able to develop credible capabilities necessary for a more challenging security environment. While the command is ready to execute its mission today, we must make threat-informed decisions regarding our nuclear capabilities to provide strategic deterrence well into the future.

## **STRATEGIC THREAT ENVIRONMENT**

Chairman Milley rightly stated that we are experiencing one of the largest shifts in global geostrategic power the world has ever witnessed. ***Today, both the PRC and Russia have the capability to unilaterally escalate a conflict to any level of violence, in any domain, worldwide, with any instrument of national power, and at any time.*** USSTRATCOM measures the risk of strategic deterrence failure every day considering this reality. The DoD can no longer have the luxury of assuming the risk is always low, particularly during a crisis. Potential adversaries, as they have for years, have the capability to threaten to inflict catastrophic effects on the U.S. homeland, and on our Allies and partners to achieve their national objectives.

Our potential adversaries continue to rapidly advance the capability to conduct these attacks. Their growing capabilities will pose a danger to U.S. They will continue to expand and diversify their nuclear forces over the next decade and the PRC, in particular, will increase the role of nuclear weapons in its defense strategies. The range of their new systems complement growing nuclear stockpiles, and includes the development and modernization of survivable nuclear triads, counter-intervention, and power projection capabilities intended to deter and deny our regional influence.

The Nation faces significant risk as our potential adversaries develop and deploy emerging technologies, such as anti-satellite, hypersonic, and FOB capabilities. They are also pursuing leadership in key technologies with significant military potential including, artificial intelligence (AI), autonomous systems, advanced computing, quantum information sciences, biotechnology, and advanced materials and manufacturing. USSTRATCOM supports

Secretary Austin's call for measures to protect critical U.S. capabilities, technologies, and operations as the Nation also faces risks from the threat of foreign theft of U.S. technology, penetration of U.S. information and weapons systems, supply chain disruptions, and cyberespionage campaigns designed to erase U.S. advantages. Cyber threats from the PRC, Russia, and the Democratic People's Republic of Korea (DPRK) are determined and unrelenting. Even now, Russia threatens cyberattacks against the U.S. as tensions over Ukraine increase. To that end, USSTRATCOM implemented a new construct to operationally harden NC3 systems against cyber threats to improve force readiness during competition and crisis. We must mitigate these threats for future programs to field new uncompromised capabilities.

### People's Republic of China

We should carefully consider the PRC's actions rather than their rhetoric. The breathtaking expansion of land-, sea-, and air-based nuclear delivery platforms, command and control survivability, novel and asymmetric weapons, and supporting infrastructure is inconsistent with a minimum deterrent posture. When I testified last year, I warned that the PRC was capable of executing any plausible nuclear strategy. ***I am fully convinced the recent strategic breakout points towards an emboldened PRC that possesses the capability to employ any coercive nuclear strategy today.***

Just three months after my April 2021 testimony, commercial satellite imagery revealed three new nuclear missile fields in western China, each with approximately 120 missile silos. With this discovery, it is clear the People's Liberation Army Rocket Force (PLARF) will soon achieve a robust ICBM capability. The new silos can be equipped with the solid-fueled, roadmobile CSS-10 Mod 2 capable of reaching the continental United States (CONUS). This is in addition to the fixed ICBM arsenal of CSS-4 Mod 2 and multiple independently targetable reentry vehicle (MIRV) equipped CSS-4 Mod 3 ICBMs. While only a developmental concept in 2019, the PRC has already fielded the road-mobile, MIRV-capable, CSS-20 with launch options including silo or rail-mobile basing. Counting both conventional and nuclear-armed missiles, the PLARF employs over 900 theater-range intermediate and medium-range ballistic missiles (IRBM / MRBM), some of which are capable of doing catastrophic damage to United States, Allied, and partner forces in the region. Combined, this formidable arsenal is cause for concern.

Further advancements in the last year include ground-based, large phased array radars and at least one geostationary satellite capable of detecting ballistic missile launches. These capabilities, plus a rapidly expanding silo-based ICBM force, indicate the PRC increased the peacetime readiness of its nuclear forces and seeking a Launch-on-Warning posture, all while the PLARF now rotates its nuclear and conventional brigades to "high alert duty" posture for unspecified periods. Enhancing the survivability of its sea-based deterrent, the third generation JL-3 submarine launched ballistic missiles (SLBM) allows the People's

Liberation Army Navy's (PLAN) now six JIN-class ballistic missile submarines (SSBN) to target CONUS from a protected bastion within the South China Sea.

***The PRC's pursuit of an ICBM delivered HGV with FOB capability is a technological achievement with serious implications for strategic stability.*** On 27 July 2021, the PRC's first HGV FOB test resulted in 40,000 kilometers distance flown and over 100 minutes of flight time—the greatest distance and longest flight time of any land attack weapon system of any nation to date. The PRC is investing heavily in HGV and directed energy weapons technology for global strike and defeat of missile-defense systems, anti-satellite, anti-missile, and antiunmanned aircraft system capabilities.

The PRC is increasing its capacity to produce and enrich plutonium by constructing fast breeder reactors and reprocessing facilities, which may be used to support a growth in China's nuclear weapons stockpile. While the PRC may use a portion of this infrastructure for civilian nuclear technology programs, it is highly likely some infrastructure will support their expanding nuclear weapons program. This accelerated nuclear expansion may enable the People's Liberation Army (PLA) to field over 700 nuclear warheads by 2027. The PRC likely intends to have at least 1,000 warheads by 2030, greatly exceeding previous DoD estimates. Unlike the U.S., The growth of the PRC's nuclear arsenal is not constrained by any treaty limits.

Finally, the PLA continues to develop and field precision strike nuclear delivery systems. The dual-capable DF-26 IRBM can range critically important ports, airfields and bases in the western Pacific with conventional and nuclear payloads. Survivable road-mobile transporter erector launchers can deliver the DF-31A ICBM at ranges in excess of 11,000 kilometers. The PLA's H-6N air-to-air refueling-capable bomber, which can carry the nuclear air-launched ballistic missile (ALBM), is entering its second year of operational service. The 2020 Annual Report to Congress, released in November 2021, surmises that the PRC may be building a new conventional- and nuclear-capable stealth strategic bomber with global reach in addition to medium and long-range stealth bombers. These nuclear-related advancements are additive to the PRC's ongoing conventional modernization and expansion efforts, where they already have a substantive overmatch in regional- and theater-class weapons and capabilities.

## **Russia**

Russia is in its second decade of investing substantial resources to expand their strategic and non-strategic nuclear capabilities. In a recent statement, President Vladimir Putin recounted that in 2000 Russian nuclear deterrent forces were only 12% modernized. By late 2020, President Putin stated that 86% of Russia's nuclear forces had been modernized, including components from all legs of their strategic nuclear triad, and promised to increase modernization to 89% by the end of 2021. Nuclear weapons are an integral part of Russia's

national security strategy and Moscow appears to utilize them to demonstrate political stake, deter outside actors, and support resolutions acceptable to Russia. In June 2020, Russia publicly revealed its official nuclear deterrence strategy for the first time, describing threats and conditions for the use of nuclear weapons. Within this strategy, Russia acknowledges it could use nuclear weapons first, including in response to conventional attacks that threaten the “existence of the state.”

Russia made extensive efforts to update their ICBM force with single and multiple warhead missiles, including the developmental silo-based SS-X-29 Sarmat heavy ICBM with the capacity to carry ten or more warheads on each missile; the deployed, more capable silo-based variant of the SS-27; and the silo-based or road-mobile “KEDR” ICBM to be fielded by 2030. To support the expansion and modernization of the sea-leg of its triad, Russia plans to complete the production of ten DOLGORUKIY-class SSBNs and deploy them equally across the Northern and Pacific Fleets by 2028. These SSBNs will carry the new SS-N-32 Bulava SLBM, enhancing Russia’s strategic reach while retiring the older Delta IV SSBNs.

Russia also continues to invest in strategic air capabilities, fitting its heavy bombers with a new advanced nuclear cruise missile. On 12 January 2021, Russia accepted delivery of the first of ten brand-new Tu-160M strategic bombers with updated NV-70M radar and NK-32-02 engines. An accomplishment not seen since the Cold War, restarting the Tu-160M production line required cooperative efforts between the Kremlin and the Russian industrial base. The opening of new manufacturing and production lines further illustrates Russia’s ability to rapidly increase its industrial production capacity to support its strategic forces.

In my last testimony, I highlighted Russia’s novel and advanced weapon delivery systems, many of which are capable of hypersonic speeds and flight path adjustments designed to avoid U.S. missile defense systems. They pursue these capabilities despite the United States clearly relying on its strategic nuclear forces to deter any large attack by Russian nuclear weapons. The Avangard HGV, Tsirkon hypersonic anti-ship and land-attack missile, and Kinzhal ALBM are operationally fielded now. Meanwhile work continues on the Skyfall nuclear-powered intercontinental cruise missile and the nuclear-armed Poseidon autonomous underwater vehicle. All provide Russia with an even more diverse and flexible nuclear force while posing a challenge for us. Defense Minister Sergei Shoigu asserted that hypersonic weapons will make up the core of Russia’s non-nuclear deterrence capability in the future. Russia is not limiting itself to these new systems and claims to have already completed serious research and technological groundwork on pieces of equipment that have no counterpart in the world. They continue to develop additional strategic systems with new hypersonic warheads to expand the range of threats against the U.S., our Allies and partners.

Russia’s stockpile of approximately 1,000 to 2,000 non-treaty accountable nuclear weapons is anticipated to grow. These weapons fall entirely outside of the U.S.-Russia New Strategic Arms Reduction Treaty (START) and provide Russia with a diverse stockpile of theater and

tactical weapons systems employable by naval, air, and ground forces. In a conventional conflict, if Russia perceives an irreparable imbalance of forces, it may escalate to non-treaty accountable nuclear weapons use.

In October 2019, Russia conducted their largest strategic nuclear exercise since the collapse of the Soviet Union. The exercise was notable for the size and scope of the nuclear forces involved and strategic messaging. President Putin participates in these exercises, indicating a high-level of readiness across Russia's strategic nuclear forces and intending to serve as a visible message to the U.S. and NATO. These major strategic exercises include command and control operations with participation of the entire nuclear triad; an ICBM combat training launch; and long-range aviation cruise missile launches. More importantly, Russia rescheduled and completed the strategic exercise to coincide with the invasion of Ukraine in February 2022.

## **DPRK**

The DPRK remains a strategic security challenge as it continues to conduct activities that threaten regional stability and defy international norms. The DPRK previously tested ICBM class missiles designed to reach the U.S., and they have a large arsenal of theater-class missiles. The recent missile launches demonstrate their ongoing desire to develop a credible missile threat. USSTRATCOM supports the Department's efforts with regional partners to reduce military tensions and encourages diplomatic efforts to pursue the DPRK's denuclearization. At the same time, USSTRATCOM will continue to contribute to the extended deterrence commitments of the Republic of Korea and Japan.

## **INTEGRATED DETERRENCE**

While deterrence is not a new concept, the emerging security environment necessitates integrated deterrence to leverage all elements of national power, while enabling the Joint Force to synchronize actions across domains and time on an unprecedented scope and scale. ***Yet, the foundation of the Nation's strategic deterrent is unchanged: a powerful and ready nuclear force, a survivable NC3 system, and a responsive nuclear weapons infrastructure. Absent this foundation, the credibility of integrated deterrence will not work.***

Sustaining and strengthening our Nation's deterrence is imperative. Our potential adversaries employ coercion or threat of force as a means to challenge U.S. security commitments and undermine the existing international order. To confront aggressive and coercive behaviors of nuclear-capable near-peers, the Nation must leverage all elements of national power with our nuclear enterprise at its foundation. Integrated deterrence orients the DoD toward stability and cooperation, and clearly communicates the folly and cost of aggression and that diplomacy is always the best option.

Alliances and partnerships remain our greatest strength and are enabled by our credible extended assurance and deterrence. Our policies and postures must enable our Allies to contribute to collective defenses even in the face of adversary nuclear coercion. We share with our Allies and partners a collective of like-minded states who believe a free and open world should be the foundation of the international order. ***Our alliances are only as strong as the guarantee of extended deterrence and assurance backed by credible U.S. nuclear forces, which are essential to integrated deterrence.***

## WHAT WE NEED TO DO OUR MISSION

***Fundamentally, strategic deterrence relies on credible capabilities backed by a safe, secure, reliable, and effective nuclear enterprise.*** We no longer face a singular operational problem set but must consider two nuclear-capable near-peers simultaneously. The attributes provided by all three legs of the triad, forward-deployed regional capabilities, a robust NC3, and a weapons complex able to adapt to future threats offers the President flexible options and enhances the credibility of deterrence. Our strategic capability and capacity must evolve with the threat to achieve our National strategy. USSTRATCOM encourages Congress, the Department, and the Services to continue their decades-long support for these vital national security capabilities.

## LAND-BASED TRIAD COMPONENT

The Minuteman III (MM III) ICBM force has stood on continuous alert every hour of every day for the past 50 years, ready to deliver a responsive and highly reliable strategic deterrent capability—and our potential adversaries know it. MM III represents half of the Nation's day-to-day available deterrent and its geographic dispersion presents an intractable targeting challenge. I previously testified that without the Nation's ICBMs the PRC becomes a strategic nuclear peer. ***The discovery of three new ICBM missile fields in the last year demonstrates the value the PRC places on land-based forces. If we choose not to continue investing in the landbased leg of our triad, the PRC will soon have a superior, modernized nuclear force with elevated day-to-day readiness.***

## Requirement for MM III Sustainment

The MM III is well beyond its intended 10-year design life, yet still provides a high availability rate, testifying to its robust design, past modernization efforts, and the dedication of the Airmen of the U.S. Air Force. Exhaustive Air Force analysis decisively demonstrated that another MM III life extension is more costly than recapitalization, and the debate has moved well beyond funding. We cannot continue to rely on an aging ICBM force with end-of-life challenges and the inability to pace the threat. We must complete Ground Based Strategic

Deterrent (GBSD) recapitalization on time and avoid the “sunset mentality” prevalent when replacing old systems.

### **Requirement for Ground Based Strategic Deterrent**

GBSD is the program of record to recapitalize the ICBM force and is critical for maintaining a strong deterrent posture. GBSD will be able to pace the threat and is integral to our strategy to navigate the three-party nuclear-capable peer reality. Its development, procurement, and deployment are the best approach to ensure the land-based leg of the triad remains effective and affordable. GBSD preserves the MM III’s key attributes while improving operational effectiveness against a rapidly developing threat. USSTRATCOM encourages continued Congressional support for the Air Force’s ongoing GBSD strategy – pursue mature, low-risk technologies; design modularity; advanced cyber security; open system architecture; and state-of-the-art model-based systems engineering.

### **SEA-BASED TRIAD COMPONENT**

The Navy’s OHIO-class SSBN fleet, paired with the Trident II D5 Strategic Weapon System (SWS), combines a highly effective, survivable, worldwide launch capability with continuous and virtually undetectable strategic deterrent patrols. Since their first deployment, early in the Cold War, we have relied on our SSBN fleet for a resilient, reliable, and survivable deterrent.

### **Requirement for Trident Sustainment and Modernization**

No single Navy submarine has served longer than 37 years, yet the entire OHIO-class SSBN fleet has been life extended to an unprecedented 42 years. USSTRATCOM requires OHIO-class sustainment and modernization until completely replaced in 2042 by the COLUMBIA-class SSBN. OHIO-class sustainment is critical to ensure operational availability of the submarine force to minimize significant transition risk throughout the COLUMBIA-class deployment timeline. The COLUMBIA-class SSBN remains a high priority strategic deterrent program for USSTRATCOM. The program of record delivers twelve SSBNs, the absolute minimum required to meet at-sea requirements, especially during triad recapitalization and future intensive fleet maintenance periods. Continued Congressional support for the COLUMBIA program is vital to strategic deterrence. It must deliver on time to avoid a triad capability gap.

To guarantee uninterrupted SSBN capability, we must continue investing in our SSBN SWS programs. The Navy previously life extended the Trident II D5 weapon system (D5LE) to outfit the OHIO-class through retirement and deployment of the first eight COLUMBIA-class SSBNs. A second D5 life extension (D5LE2) is required to ensure a viable SSBN deterrent through the 2080s. D5LE2 will continue reliable, high performing D5LE design elements and



components in order to mitigate cost and technical risk. Additionally, D5LE2 meets current D5 demonstrated performance while offering added flexibility to support future missions and payloads in response to advancing threat environments.

### **Anti-Submarine Warfare**

Anti-submarine warfare threats continue to evolve rapidly as potential adversaries continuously look for new and innovative ways to gain an advantage in the undersea domain. The Navy's Integrated Undersea Surveillance System (IUSS) provides vital information concerning submarine and surface ship operations, and acoustic characteristics of interest. It allows U.S. forces to maintain favorable tactical and strategic positions while supporting deterrent patrol operations. Surveillance performed by IUSS directly contributes to the theater anti-submarine warfare commander's maritime defense of the homeland. Advances in Russian submarine stealth and detectability makes IUSS recapitalization a national imperative.

While our submarines are formidable weapon systems, we must address potential adversary's undersea security advances to ensure our current and future SSBN fleet remains effective and viable well into the future. Evolving submarine quieting, acoustic arrays, and processing capabilities challenge our acoustic superiority and subsequently, SSBN survivability. Advanced modifications of large vertical arrays, advanced materials science and coatings, and other efforts within the Acoustic Superiority Program are vital. Funding for these emerging passive long-range detection/wide area search programs secure our SSBN fleet advantages through the OHIO to COLUMBIA transition.

### **AIR-BASED TRIAD COMPONENT**

The bomber fleet is our most flexible and visible leg of the triad. We are the only nation with the capability to provide bombers in support of our Allies and partners, enabling the U.S. to signal our resolve while providing a flexible option to de-escalate a conflict or crisis. Bombers support both strategic deterrent and conventional employment options, and execute global strike, nuclear, and conventional deterrent mission sets around the globe to achieve National objectives. USSTRATCOM executed 127 Bomber Task Force (BTF) missions over the past year. BTFs remain the iconic example of dynamic force employment across the entire Joint Force and potential adversaries watch these missions closely. We strongly encourage continued Congressional support for full funding of the bomber fleet.

### **B-52H Sustainment**

The B-52H is a 60-year-old platform with plans to remain in service for another 30 years. Achieving this unparalleled milestone carries maintenance and operational challenges, which require dedicated technical and funding resources. Critical B-52 modernization

upgrades include the Commercial Engine Replacement Program (CERP), Radar Modernization Plan (RMP), and survivable NC3. These improvements are necessary to keep the B-52 flying and able to pace the evolving threat. The Air Force recently selected Rolls-Royce to execute CERP to replace the B52's 1960s-era TF-33 engines, enabling longer unrefueled range with lower emissions while solving supply chain issues afflicting the current engines. The B-52's very low frequency (VLF) and extremely high frequency (EHF) modernization programs will provide mission critical, beyond-line-of-sight strategic connectivity, and must field on time to meet USSTRATCOM's operational requirements.

## **B-2 Sustainment**

The B-2 fleet remains the world's only low-observable bomber, able to penetrate denied environments while employing a wide variety of munitions against high-value strategic targets. The DoD must protect this unique operational advantage as the Air Force transitions from the B2 to the B-21. The Air Force can only achieve a successful transition with full funding for the B2 sustainment and modernization programs until the B-21 completes development and certification, both conventional and nuclear missions. A carefully synchronized transition is necessary to mitigate operational risk associated with executing the triad-wide multi-platform recapitalization.

## **Requirement for B-21**

The B-21 Raider will support the nuclear triad with a visible deterrent capability and provide strategic and operational flexibility across a wide range of military objectives. The program is on track to meet USSTRATCOM operational requirements, with five test aircraft currently in development and the first operational aircraft scheduled for delivery in the mid2020s. USSTRATCOM supports fully funding the Air Force's B-21 strategy to prevent operational shortfalls in the bomber force.

## **Air-Delivered Weapons / Long Range Standoff**

The air-delivered weapons portfolio consists of the Air Launched Cruise Missile (ALCM), the B83 gravity bomb, and the B61 family of weapons providing the right mix of standoff and direct attack munitions to meet near-term operational requirements. The long range standoff (LRSO) weapon will replace the ALCM as our Nation's only air-delivered standoff nuclear capability. It will provide the President with flexible and scalable options, and is capable of penetrating and surviving against advanced air defenses – a key attribute and critical component in all USSTRATCOM operational plans. Without LRSO, B-2 and B-21 bombers will have no option but to fly directly over targets to drop gravity-delivered weapons unnecessarily increasing risk to the mission and the lives of Air Force bomber aircrews.

The LRSO complements the ICBM and SSBN programs as they transition from legacy to modernized weapon systems. The LRSO on-time delivery is important to sustaining strategic stability, as potential adversaries will exploit gaps resulting from technical problems or production delays. Finally, fielding LRSO is cost-effective. Using gravity weapons to deliver similar effects would require ten-times the current bomber allocation and four times the current tanker allocation, with more gravity weapons, or employment of additional triad elements. LRSO full funding is absolutely imperative to reduce operational risks we face during triad recapitalization.

## **NUCLEAR COMMAND, CONTROL, AND COMMUNICATIONS**

NC3 provides the critical assured communications link between the President and our nuclear forces. On-going NC3 Enterprise Center (NEC) modernization efforts bridge the gap between legacy and future systems to ensure this critical link does not fail. While aging capabilities provide the nuclear triad with sufficient viable assured strategic communications; today, sustainment issues increasingly compromise the reliability of these stalwart systems. Modernizing our NC3 systems is key to ensuring the nuclear capability of the Nation remains fully positioned to provide an assured response if called upon. Our NEC Next Generation capabilities must pace adversary emerging and future technological developments.

### **NC3 Next Generation / Modernization**

Potential adversaries continue to rapidly research, develop, and field emerging technologies and weapon systems. We are at a point where end-of-life limitations and the cumulative effects of underinvestment in our nuclear deterrent and supporting infrastructure leave us with no operational margin. The Nation simply cannot attempt to indefinitely life-extend leftover Cold War weapon systems and successfully support our National strategy. Pacing the threat requires dedicated and sustained funding for the entire nuclear enterprise and NC3 Next Generation modernization must be a priority.

The DoD operates, maintains, and defends the current NC3 enterprise every single day from cyber threats. In coordination with the Services, USSTRATCOM led an enterprise-wide approach to harden the current architecture until complete fielding of the NC3 Next Generation. As an example, the Air Force is leading the effort to modernize the NC3 data pathways for the Strategic Automated Command and Control System (SACCS), replacing legacy telephony to sustainable and secure modern technology with upgraded at-risk cryptographic devices.

The NEC and DoD stakeholders fielded the NC3 Next Generation Increment 1 capabilities, including the Family of Advanced Beyond Line of Sight Terminals (FAB-T) to replace antiquated survivable satellite communications equipment. The NEC, the National Security

Agency (NSA), and the Services also began replacing outdated encryption equipment with newer, upgraded capabilities. The NC3 Enterprise continues segment upgrades to legacy telecommunications capability from analog to digital working closely with the Defense Information Systems Agency. This conversion is the first step to standardize our enterprise-wide terrestrial communications highway. Additionally, the NEC collaborated with U.S. Cyber Command (USCYBERCOM) to execute a cybersecurity pilot program to provide real-time, persistent monitoring across various NC3 networks to detect, characterize, and mitigate adversary network actions.

The NEC, Navy, and Air Force completed the first step in a digital high frequency (HF) demonstration to enable advanced beyond line-of-sight communication between our command centers and operational forces. USSTRATCOM developed, installed, and deployed a mobile communications suite providing an alternative communications capability supporting continuity of operations and force direction. This new capability will enable USSTRATCOM to rapidly create requirements and field systems in the future.

The NEC is undertaking several efforts to more rapidly develop and deliver NC3 enterprise capabilities. The NEC established a digital modeling and engineering environment (DMEE), a collaborative platform in the standard development of and test engineering specifications for the NC3 enterprise. The NEC and the University of Nebraska-Lincoln, through a Partnership Intermediary Agreement (PIA), established the Nebraska Defense Research Corporation (NDRC). The PIA fosters collaboration between commercial entities, defense industry, academia, Federally Funded Research and Development Centers (FFRDCs), and other government agencies. The NDRC is already prototyping of future NC3 Next Generation Incremental capabilities. All of these efforts are currently ongoing and will posture delivery of NC3 Next Generation Increments and provide increased operational margin within our NC3 Enterprise.

### **NC3 Cybersecurity, Technological Improvements, and AI / Machine Learning (ML)**

USSTRATCOM continues to realize the benefits from the investment in our world class Command and Control Facility, the DoD's newest NC3 command center. Confidence in our ability to protect, defend, and execute the nuclear deterrent mission in the face of advanced cyber threats remain high. The relative isolation and the redundancies of the systems comprising the Nuclear Command and Control System (NCCS), combined with ongoing cybersecurity enhancements, ensure our ability to respond under adverse cyber conditions. To preserve our critical information and command and control advantages, USSTRATCOM is investing in cybersecurity protections that exceeds the DoD baseline standard while looking for opportunities to improve that posture.

Near-term efforts to enhance cybersecurity of the NC3 enterprise include: the establishment of quarterly cybersecurity reporting for all NC3 information technology (IT) systems;

ongoing efforts with USSTRATCOM system program managers to correct cybersecurity shortfalls; piloting of a persistent cyber sensing and monitoring capability for NC3 IT systems; and the development and execution of Defensive Cyber Operations (DCO) Internal Defensive Measures (IDM) to harden and defend the NC3 cyber terrain. As the threat evolves; however, the DoD must continue to fund and rapidly implement required cybersecurity capabilities. CyberSecurity Service Provider (persistent cyber defense); persistent sensing and monitoring across the NC3 enterprise; and cryptographic modernization will ensure the confidentiality of our information and decision making capabilities. A responsive cyber Command and Control construct will enable the rapid dissemination of defensive cyber operations orders, facilitate action, and enable follow-up reporting. These efforts will ensure continued readiness of the nuclear deterrent mission and set conditions for the success of our conventional forces.

Deep learning and advanced data management concepts are also fueling new demands for infrastructure that can scale to capacity on demand. Acting on the guidance of the Deputy Secretary of Defense and recommendations from the National Security Commission on AI, USSTRATCOM implemented the Command Data and AI Center (CDAI) to solve the command's most intractable problems through the application of advanced AI/ML methods. The command is recruiting a highly skilled workforce to build and maintain a resilient and scalable cloud and on-premise infrastructure to provide the capabilities to maintain information advantage over our potential adversaries.

We will do this in ways consistent with the DoD Ethical Principles for Artificial Intelligence, while continuing to lead in developing best practices for the development and application of AI and ML technologies to ensure their use is safe, secure, reliable, and consistent with our values. In an effort to "go faster," USSTRATCOM completed a 90-day pilot to assess opportunities to leverage commercial industry and use of non-traditional unclassified data sources to solve some of our most challenging problems. I strongly endorse Deputy Secretary of Defense Hicks's AI and ML initiatives in this critical focus area.

USSTRATCOM continues to collaborate with USCYBERCOM, the Services, and agencies to leverage technologies in development, security, and operations (DevSecOps), code delivery, cloud computing, and data analytics to accelerate the development and delivery of new capabilities. Initiatives in these areas will jumpstart development of frameworks and governance necessary to pace the threat. Likewise, these new areas require stable, consistent, and on-time funding.

## **NUCLEAR WEAPONS AND SUPPORTING INFRASTRUCTURE**

The Nation faces a confluence where triad delivery platforms, weapons, and infrastructure must modernize simultaneously. As with DoD programs, the Department of Energy (DoE) and the National Nuclear Security Administration (NNSA) fill a vital role providing the

weapons and components required to maintain the Nation's strategic deterrent mission. The NNSA's programs of record must be prioritized and executed on schedule to ensure the DoD retains a credible and modern triad. The NNSA's ability to sustain the Nation's nuclear weapons stockpile is underpinned by a resilient and responsive production infrastructure and robust science and technology programs. All of these elements are critical to maintaining a safe, secure, and effective deterrent force. The objective is to restore the weapons complex to a resilient, responsive and modern condition; capable of sustaining the health of the Nation's stockpile and keeping pace with the evolving threat environment.

### **Nuclear Weapons and Stockpile Challenges**

While today's stockpile is safe, secure and militarily effective, I am increasingly concerned with reliability and performance degradations in the majority of our systems. We must execute stockpile modernization programs on time to reverse this trend. In compliance with national policy, the NNSA has done an excellent job reducing the weapons stockpile. As we shift focus beyond life extension to modernizing our remaining weapons, we must overcome obstacles that delay program execution. Failure to do so results in accumulation of operational risk from continued deferral of necessary modernization programs and aging weapons in the stockpile decades longer than intended. For example, both the B61 life extension and W88 alteration programs were delayed 24-months and are now late-to-need. The W80-4 program is a just-in-time modernization for airborne standoff capability, and any program delay incurs operational impacts.

Stockpile modernization programs take 10-15 years to execute. Without a concerted effort to reduce these timelines, today's issues will continue to manifest as the Nation undertakes more complex ballistic missile modernization programs. Specifically, W87-1 is the "pathfinder" weapons program for modernizing our land- and sea-based ballistic missile systems and will develop the infrastructure and technology processes needed in the future. Any W87-1 program delays will cascade through each follow-on program, beginning with the W93/Mk7. W93/Mk7 must deploy on time to reduce our over-reliance on a single SSBN warhead type, avoid future simultaneous SLBM modernization and support the United Kingdom's modernization to its deterrent force.

### **Weapons Complex Infrastructure**

The DoE, NNSA, and DoD work closely to ensure the nuclear weapons infrastructure complex is postured to ensure the stockpile remains safe, secure, and militarily effective. However, today's Manhattan Project-era infrastructure is in poor condition, challenging NNSA's ability to successfully meet basic sustainment needs. Long-term deferred infrastructure investments have significant impacts, and there are heightened concerns with every major site providing critical stockpile capabilities to include uranium, tritium, high explosives,

lithium, radiation-hardened electronics, testing, experimentation, and weapon assembly/disassembly.

Infrastructure modernization must be accomplished to prevent delays in fielding required capabilities. Prioritizing crucial NNSA infrastructure modernization programs is the best and only option to pace projected threats and sustain strategic deterrence.

In 2021, it became clear the production complex would not meet the Nation's plutonium pit production requirements, necessitating pursuit of less optimal approaches to meet stockpile modernization programs in the 2030s. Pit production shortfall is a leading indicator of how our current infrastructure is unable to execute the needed and planned stockpile modernization strategy. The atrophied condition of the infrastructure, coupled with delays in fielding necessary state of the art capabilities, significantly increases operational risk in sustaining a safe, secure, and effective nuclear deterrent.

## **CONVENTIONAL HYPERSONIC WEAPONS**

Hypersonic weapons development remains a top USSTRATCOM priority. Hypersonic weapons will provide a highly responsive, non-nuclear global strike capability against distant, defended, and/or time-critical threats when other forces are unavailable, denied access, or not preferred. Conventional hypersonic weapons will enhance our overall strategic deterrence posture by providing the President additional strike options to rapidly project power and hold high-value targets at risk without crossing the nuclear threshold. USSTRATCOM will be ready to command and control hypersonic weapons the day they are fielded, as these weapons directly contribute to the Command's Strategic Deterrence and Global Strike missions. We appreciate and encourage continued Congressional funding as we quickly develop, procure, and field this enhancement to our strategic deterrence portfolio.

## **CONCLUSION**

Potential adversary actions are challenging us in ways we have not experienced in over 30 years. USSTRATCOM will continue to deter strategic attack and employ forces as directed by the President to guarantee the security of the Nation, our Allies, and our partners. We must remember deterrence is not a static concept – it evolves – and the current evolution of the world's strategic security environment will result in three nuclear-capable near-peers. **The PRC and Russia actively seek to change the international rules-based order, while the U.S., with our Allies and partners, seek to defend it.** Our military can contribute to an integrated whole-of government approach only if we make clear-eyed and threat-informed decisions regarding the capabilities needed to protect and defend the Nation. The Nation's nuclear force is the backstop of integrated deterrence. Today, we stand ready to execute our assigned missions. Failure to pace the threat from potential adversary technological advances today may inhibit our ability to do so in the future. To execute a National strategy

resistant to adversarial coercion, we need modern, effective, and reliable capabilities. Above all else, USSTRATCOM will continue to provide strategic deterrence, underwriting every U.S. military operation around the world and deterring great power conflict. Peace is our Profession...

\*\*\*\*\*

**Document No. 2. Selections from United States Northern Command (USNORTHCOM) Gen. Glen D. VanHerck, Testimony before the House Armed Services Committee, Subcommittee on Strategic Forces, March 1, 2022 (all emphases appear in original.)**

Chairman Cooper, Ranking Member Lamborn, and members of the Subcommittee: thank you for the opportunity to testify today. I am proud to lead the men and women of United States Northern Command (USNORTHCOM) and North American Aerospace Defense Command (NORAD) as we defend the United States and Canada in an increasingly complicated and dynamic strategic environment. Our commands continue to face multiple simultaneous challenges from capable, highly advanced competitors who have openly declared their intent to hold our homelands at risk in an effort to advance their own strategic interests.

Today, strategic competitors, rogue nations, and non-state actors possess the capability to strike institutions and critical infrastructure in the United States and Canada. These threats, along with the realities of modern global competition, drive USNORTHCOM and NORAD to think globally and seek innovative capabilities that increase senior leader decision space and help to expand the range of available options for deterring in competition, de-escalating in crisis, and—if necessary—defeating in conflict.

As the U.S. combatant command responsible for homeland defense, for providing defense support of civil authorities, and security cooperation with allies and partners in our area of responsibility, USNORTHCOM is facing the most dynamic and strategically complex set of challenges in the history of the command. Together with NORAD, the distinct, complementary U.S.-Canada bi-national command responsible for aerospace warning, aerospace control, and maritime warning for the United States and Canada, our commands are taking decisive institutional and operational measures to defend our homelands.

## **DEFENDING THE HOMELANDS**

In my testimony before the Committee last year, I described a rapidly evolving geostrategic environment in which our competitors were continuing to take increasingly aggressive steps to gain the upper hand in the military, intelligence, economic, and diplomatic arenas. For decades, the United States has been accustomed to choosing when and where the nation will employ the military lever of influence and project power around the globe from a homeland that was assumed to be secure. Our competitors have studied this operating model for the



last 30 years and have developed strategies and capabilities intended to offset our military advantage and disrupt our force flows.

Quite bluntly, my ability to conduct the missions assigned to USNORTHCOM and NORAD has eroded and continues to erode. Our country is under attack every day in the information space and cyber domain. Competitors are spreading disinformation, actively sowing division and fanning the flames of internal discord with the intent to undermine the foundation of our nation, our democracy, and democracies around the world. These competitors are also constantly seeking to exploit security vulnerabilities and policy gaps, especially in the cyber domain. They are preparing for potential crisis or conflict with the intent to limit decision space for our senior leaders by holding national critical infrastructure at risk, disrupting and delaying our ability to project power from the homeland, and undermining our will to intervene in a regional crisis.

The threat to North America is complex. Over the last year, our competitors have accelerated their fielding of kinetic and non-kinetic capabilities specifically designed to threaten our homeland. Of equal or greater concern is their relentless, coordinated effort to weaken the institutions and alliances at the core of our strength and influence while expanding their own influence internationally. Today, our competitors hold our homeland at risk in multiple domains and are working constantly to exploit perceived vulnerabilities.

Russia and China continue to aggressively pursue and field advanced offensive cyber and space capabilities, cruise missiles, hypersonic weapons, and delivery platforms designed to evade detection and strike targets in our homeland from multiple vectors of attack and in all domains. USNORTHCOM and NORAD's ability to defend against modern threats requires improved all domain awareness, updated capabilities, and policies and strategies that reflect the current strategic environment and the advanced capabilities of our competitors. Meanwhile, I require access to ready and trained forces to operate throughout the USNORTHCOM area of responsibility, including the Arctic, to respond in crisis and quickly execute homeland defense campaign plans.

My mission to provide timely and accurate threat warning and attack assessment requires increased domain awareness and breaking down information stovepipes that restrict the flow of needed information to decision makers in the United States and Canada. The ability to detect a threat, whether from a cyber-actor or a cruise missile, is a prerequisite to defeating the threat. Timely and accurate detection, tracking, and assessment of potential threats provides critical decision space and time to national leaders, while an inability to do so limits available response options.

Lack of domain awareness contributes to increased risk of miscalculation, unnecessary escalation, and potential for strategic deterrence failure. Maintaining our strategic advantage begins with improving domain awareness globally, including in the approaches to North

America. Incorporating artificial intelligence and machine learning into existing capabilities will allow users to pull needed information from existing data sets and share that data with leaders at all levels to expand their decision space and options necessary to achieve desirable outcomes.

To ensure our ability to compete in the current strategic environment, DoD plans, force structure, and logistics must evolve beyond 9/11-era threats and outdated assumptions regarding competitor capabilities, strategies, and ambitions. In order to deter modern competitors, we must make clear that we have the capability to fight in and from the homeland. Further, policy determinations are needed regarding what key infrastructure is to be defended, and from what threats, in order to develop realistic assessments and plans for the defense of critical infrastructure that fully account for advancing competitor capabilities and strategies.

In order to defend the homeland in this complex strategic environment, USNORTHCOM and NORAD have shifted our efforts to left-of-conflict strategies, emphasizing integrated deterrence in competition, and dramatically improving our ability to provide leaders with needed decision space on a day-to-day basis. To be successful in competition, DoD must develop and implement globally integrated plans, strategies, operations, and exercises that incorporate all levers of influence, to include the essential contributions of our international allies and partners.

## **COMPETITORS AND THREATS**

### **Russia**

Russia is the primary military threat to the homeland, and their focus on targeting the homeland has provided the model other competitors are beginning to follow. First, Russia has invested significant resources to modernize all three legs of its nuclear triad in an effort to ensure its ability to deliver unacceptable damage on our homeland during a conflict. In December 2019, Russia fielded the world's first intercontinental ballistic missiles (ICBMs) equipped with a hypersonic glide vehicle (HGV) payload. These weapons are designed to glide at extremely high speeds and maneuver at low altitudes in order to complicate our ability to detect and track. In the next few years, Russia seeks to field a new heavy-lift ICBM that President Putin claims will be able to deliver nuclear warheads to North America from both northern and southern trajectories. Weapons such as these are designed to circumvent the ground-based radars utilized by USNORTHCOM and NORAD to detect and characterize an inbound threat, and challenge my ability to provide threat warning and attack assessment. The impact is the loss of critical decision space for national-level decision makers regarding continuity of government and the preservation of retaliatory capabilities, resulting in an increase in the potential for strategic deterrence failure.

Over the last 15 years, Russia has also executed a systematic program to develop offensive capabilities below the nuclear threshold that Russian leaders believe will constrain U.S. options in an escalating crisis. Their capabilities include very capable cyber capabilities like those demonstrated by Russia-based actors during last year's ransomware attack on the Colonial Pipeline. Russia has also invested in counter-space capabilities like the direct-ascent antisatellite weapon that Russia recklessly tested in November 2021.

To augment these non-lethal capabilities, Russia has fielded a new family of advanced air-, sea-, and ground-based cruise missiles to threaten critical civilian and military infrastructure. The AS-23a air-launched cruise missile, for instance, features an extended range that enables Russian bombers flying well outside NORAD radar coverage—and in some cases from inside Russian airspace—to threaten targets throughout North America. This capability challenges my ability to detect an attack and mount an effective defense. In the maritime domain, Russia has fielded the first two of their nine planned Severodvinsk-class guided missile submarines, which are designed to deploy undetected within cruise missile range of our coastlines to threaten critical infrastructure during an escalating crisis. This challenge will be compounded in the next few years as the Russian Navy adds the Tsirkon hypersonic cruise missile to the Severodvinsk's arsenal. All of the Russian cruise missile capabilities present a significant domain awareness challenge. Additionally, these advanced cruise missiles and their supporting platforms will limit national leadership decision space and my ability to provide threat warning and attack assessment, which directly influences my ability to support continuity of government operations and provide support to USSTRATCOM missions. Again, the potential consequence is an increased risk of strategic deterrence failure.

## **China**

China is our pacing threat and a long-term geostrategic challenge. China is increasingly exerting its economic and military clout around the globe as its leaders pursue a national goal of supplanting the rules-based international order with an approach that is more aligned with China's national interests. Like Russia, China has begun to develop new capabilities to hold our homeland at risk in multiple domains in an attempt to complicate our decision making and to disrupt, delay, and degrade force flow in crisis and destroy our will in conflict.

China has maintained the ability to strike our homeland with strategic nuclear weapons since the early 1980s, but today its nuclear capabilities are growing rapidly in quantity and sophistication. China's Fractional Orbital Bombardment System test in July 2021 delivered a hypersonic glide vehicle (HGV) and demonstrated the weapon's ability to survive reentry and perform high-speed and maneuvering glide after orbiting around the globe—a feat Russia never attempted before fielding their own HGV-equipped ICBMs two years ago. When fielded, China's ICBM-class HGV will be able to evade current ground and space-based early

warning capabilities due to its low-altitude approach and ability to maneuver midcourse, which compounds the detection and warning challenges I already face from Russia's Avangard HGV and advanced cruise missiles.

In the coming years China will augment its homeland-threatening cyber capabilities with a growing long-range conventional strike capability of its own. In October 2019, China unveiled its first bomber capable of air-to-air refueling, the H-6N, which will be able to threaten targets in Alaska with air-launched ballistic or cruise missiles. Later this decade, China seeks to field its Type 095 guided missile submarine, which will feature improved quieting technologies and a probable land-attack cruise missile capability. While China's intent for employing its long-range conventional strike capabilities is not fully known, these weapons will offer Beijing the option of deploying strike platforms within range of our critical infrastructure during a conflict, adding a new layer of complication to our leaders' crisis decision-making.

### **North Korea and Iran**

North Korea's successful flight testing of an ICBM capable of reaching the continental United States and detonation of a thermonuclear weapon underscores its leaders' determination to develop capabilities to threaten our homeland and constrain our options in crisis and conflict. In October 2020, North Korea unveiled a new ICBM that is probably even more capable than the weapons it last tested in 2017. Moreover, North Korea's launch last October of a submarine-based ballistic missile suggests Kim Jong Un may soon resume flight testing his most capable weapon systems, including a new ICBM design.

Iran maintains asymmetric capabilities to threaten our homeland in the cyber domain. In 2022, Iranian officials have threatened to carry out terror operations inside the United States and elsewhere around the world, in addition to its persistent support of threats by terrorist organizations like Lebanese Hezbollah. While Iran has announced a self-imposed range limit of 2,000 kilometers on its fielded ballistic missile force, its persistent advancement of ballistic missile technologies probably could increase its missile range outside of the region.

### **Violent Extremist Organizations**

While the strategic capabilities of our peer competitors are the most pressing concern for USNORTHCOM and NORAD, violent extremist organizations such as ISIS and al-Qa'ida remain committed to attacking the United States and our allies. The Taliban's takeover in Afghanistan will likely provide new opportunities for groups like al-Qa'ida to plot against the West, while homegrown violent extremists (HVEs) challenge our law enforcement partners by using simple attack methods that continue to present the most likely international terrorist threat to the homeland. Violent extremist groups continue to hone their tactics in

response to a shifting operational environment and have maintained their focus on attacking civil aviation and U.S. military personnel and installations.

### **Transnational Criminal Organizations**

Transnational Criminal Organizations (TCOs) continue to inflict enormous damage and create instability through corruption, violence, and illicit trafficking. International criminal syndicates have flooded the United States with illegal drugs that contributed to the deaths of over 100,000 U.S. citizens in the 12-month period from April 2020 to April 2021, while harming people and weakening institutions throughout the Western Hemisphere. As TCOs battle over territory and brazenly undermine the rule of law, they create obvious opportunities for exploitation by strategic competitors seeking to broaden their global coercive strategies and increase influence and presence in the Western Hemisphere.

Mitigating the harm done by TCOs is a national security imperative for the United States and our international partners that requires an overarching whole-of-government policy and plan for interagency action that takes into consideration the vast resources and widespread influence wielded by the TCOs and their international criminal confederates. USNORTHCOM's ability to counter malign influence in our region is complicated by the destabilizing influence of TCOs in our area of responsibility, and national policy and DoD planning must take that reality into account.

### **INTEGRATED DETERRENCE**

Strategic deterrence remains the foundation of homeland defense, and I believe it is absolutely necessary to maintain a reliable and effective nuclear triad. However, reliance on deterrence by cost imposition is currently over-weighted and significantly increases the risk of miscalculation by limiting our national leaders' options following an attack. Given our competitors' advanced conventional capabilities, it is vitally important to move toward a model of integrated deterrence that employs all elements of national influence, leverages alliances and partnerships, and provides leaders with a wide range of timely deterrence options.

Integrated deterrence fuses traditional deterrence by cost imposition—in which an adversary is deterred by fear of costs that outweigh the benefit of an attack—with deterrence by denial, which causes a potential adversary to doubt the likelihood of a successful attack. Imposing costs on an aggressor that outweigh the potential benefits of an attack, demonstrating resiliency, and displaying a range of kinetic and non-kinetic response capabilities are all elements of deterrence by denial. This approach dramatically expands the military, diplomatic, and economic options available to national leaders in competition, crisis, and conflict and helps to avoid miscalculation and unnecessary escalation.

Integrated deterrence also involves competing in the information space under a strategic framework, while working with allies and partners to counter competitors' malign influence in the USNORTHCOM area of responsibility and beyond. Building the capacity to compete in the information environment reduces the risk of instability and strategic miscalculation that can stem from disinformation and other influence operations.

Demonstrations of resiliency, hardening, and the ability to recover from damage to communities and infrastructure also generate a deterrent effect. USNORTHCOM's defense support of civil authorities (DSCA) mission in the aftermath of wildfires, hurricanes, floods, and other contingencies in communities across the United States routinely showcases the ability of USNORTHCOM and the interagency community to respond quickly and effectively to natural and manmade disasters.

USNORTHCOM's track record of supporting coordinated responses and rapid recovery is the direct result of ongoing interagency planning, coordination, and exercises that ensures our readiness to support our partners at a moment's notice. To be clear, DSCA is a homeland defense mission, and USNORTHCOM's visible support to civil authorities remains a critical focus for the command, especially as environmental change contributes to more frequent and intense fires and damaging storms.

Finally, we must continue to foster the partnerships and alliances that provide the United States and our international partners with what is perhaps our most distinct asymmetric advantage. NORAD is an obvious example of the enormous benefit to shared security and regional stability generated by international cooperation. In addition, it must be noted that our relationships with NATO, the FIVE EYES community, and our regional defense and security cooperation partners in Canada, Mexico, and The Bahamas have a profound deterrent effect for the common benefit of all. USNORTHCOM and NORAD continue to foster these valuable alliances and partnerships.

## **HOMELAND DEFENSE DESIGN**

Homeland defense starts well outside the USNORTHCOM area of responsibility and necessarily involves our fellow combatant commands as well as our international allies and partners. Deterring and defending against advanced competitors that have the capability to hold the homeland at persistent risk requires an approach that emphasizes increased decision space and leverages all elements of national power over cost-prohibitive and narrowly focused kinetic defenses. DoD's ability to deter and defend against advanced global threats requires a shift from regional approaches to a global perspective that accounts for the realities of the modern strategic environment.

I believe it is necessary to accept near-term risk in order to compete against advanced, globally focused peers well into the future. Leaders must make difficult choices today in

order to avoid impossible dilemmas tomorrow—to include divesting legacy systems and capabilities that consume significant personnel and fiscal resources and are of little to no use in today’s strategic environment.

Therefore, a homeland defense enterprise that is capable of deterring and defeating threats is essential to a globally integrated forward fight and supporting broader national strategic objectives. The ability of the United States to deter in competition, de-escalate in crisis, and defeat in conflict is dependent on our collective ability to detect and track potential threats and friendly forces anywhere in the world, while delivering data to decision makers as rapidly as possible. This provides leaders with the time and informed options needed to achieve a favorable outcomes for the United States. That reality is the basis for the central principles of USNORTHCOM and NORAD homeland defense design: **all-domain awareness, information dominance, decision superiority, and global integration.**

**Domain Awareness** can be achieved through an integrated network of sensors from the seafloor to space, including cyberspace, in order to detect, track, and deter potential threats. I need improved domain awareness to increase warning time and provide leaders at all levels with as many options as possible to deter or defend against an attack. Global all-domain awareness will generate a significant deterrent effect by making it clear that we can see potential aggressors wherever they are, which inherently casts doubt on their ability to achieve their objectives.

I am grateful to the Committee for your support of the over-the-horizon radar (OTHR) that was included on USNORTHCOM’s unfunded priority list for Fiscal Year 2022. OTHR is a proven technology that will provide persistent surveillance of the distant northern approaches to the United States and mitigate the limitations of the Cold War-era North Warning System, while contributing to broader domain awareness challenges including space domain awareness. The ability to detect air-breathing and spaceborne threats in the approaches to Canada and the United States will be significantly enhanced by fielding OTHR as soon as possible. It is also vital to move quickly toward advanced space-based sensors capable of detecting hypersonic weapons, including hypersonic cruise missiles, and other advanced systems designed to evade detection. Modernizing and expanding the Integrated Undersea Surveillance System (IUSS) is equally important as Russia and China continue to field highly advanced guided missile submarines.

While some new domain awareness platforms will be required, it is possible to make exponential improvements in our nation’s ability to detect and track potential threats by improving the ways data is collected, processed, and shared. As I testified last year, the technology already exists to apply artificial intelligence and machine learning to collect and rapidly distribute information gathered from sensors around the globe. Current processes rely on human analysts to comb through enormous volumes of data, and it can take days or weeks to process, exploit, and distribute critical information—if it is ever processed at all.

We will always need expert human analysts in the loop, but I need the ability to tap into that technology to dramatically speed the delivery of information to leaders at all levels who need it.

Success in competition, crisis, and conflict depends on effectively distributing and integrating the data collected from domain awareness capabilities to establish **information dominance** over competitors and adversaries. To unlock the full value and potential of our intelligence and sensor networks, information must be integrated, appropriately classified, and rapidly shared to allow commands, agencies, allies, and partners to collaborate globally in real time and across all domains.

The potential for this capability has already been demonstrated in USNORTHCOM's Global Information Dominance Experiments (GIDE), which provided combatant commanders, intelligence and operations directors, and other participants at multiple sites with a shared, customizable, and near real-time data set. The data gathered by existing global sensors provided leaders, analysts, and operators with the information needed to make assessments and recommended courses of action that were coordinated across multiple commands in a matter of hours. Speeding the flow of information to senior civilian decision makers and commanders enabled significantly more options to achieve desired outcomes.

**Decision superiority** means increasing decision space and options to provide senior leaders. The ultimate goal of decision superiority is to provide multiple paths to avoid conflict through the application of all available elements of national power, rather than emphasizing options that are only available after a conflict has already begun. To successfully defend the homeland, we must provide leaders with pertinent information and as much time as possible to deter and de-escalate before a situation escalates out of control.

Finally, I believe it is critical for the entire defense enterprise to shift its culture and vision toward global all-domain integration. Too often, DoD posture development, communications, planning, exercises, and operations are stovepiped and isolated in ways that do not reflect the reality that all challenges are global and all-domain in nature. The Department increasingly understands that competitors would likely intend to strike the homeland in an effort to prevent flowing U.S. forces toward a regional crisis or conflict. And, in the event that the United States and our allies become engaged in a regional crisis or conflict, other competitors would likely exploit that opportunity to their own advantage—which could quickly lead to simultaneous crises in multiple theaters.

Global challenges cannot be overcome with a hodgepodge of isolated regional plans. Success in competition, crisis, or conflict is increasingly dependent on moving past outdated parochial approaches in favor of greater focus on competition rather than restricting options and absorbing unnecessary costs by continuing to over-emphasize crisis and conflict. With that in mind, USNORTHCOM, our fellow combatant commands, the Services, and our



Canadian partners have demonstrated the immediate impact of improved information sharing and collaboration between commands and allies in all phases of competition, crisis, and conflict.

The current regional approach to plans, strategies, and force design is outdated and more influenced by bureaucratic inertia than the realities of the modern strategic environment. The same is true of stagnant acquisition practices and cumbersome civilian hiring rules that only impede progress and hinder the Department's ability to move at the speed of relevance necessary to compete in today's environment.

## **RISK MITIGATION**

Risk mitigation must be a shared whole-of-government responsibility focused on broad nodes, enterprises, and capabilities rather than attempting to establish a priority-ranked list of specific sites or facilities to be protected. Mitigating the risk associated with an attack on the United States requires policy determinations about what must be defended from kinetic and nonkinetic attack. Those policy decisions, in turn, allow USNORTHCOM, NORAD, and our mission partners to determine the best ways to protect priority assets and resources.

Importantly, risk mitigation is the responsibility of the DoD, as well as a number of other interagency partners at the federal, state, and local levels. Risk mitigation requires a dedicated policy framework and deliberate interagency planning and coordination. Notably, the deterrent effect of resiliency and effective consequence management requires far fewer resources and less expense than direct defense systems.

**Ballistic missile defense (BMD):** Defending the United States against intercontinental ballistic missile (ICBM) threats from rogue nations remains a critical priority for USNORTHCOM and an important component of integrated deterrence. While current BMD capability and capacity is sufficient to defeat a limited ballistic missile attack from a rogue nation, North Korea's ongoing development of increasingly complex and capable strategic weapons requires the Next Generation Interceptor to be fielded on time or early, and for the Long Range Discriminating Radar in Alaska to achieve full operational capacity on schedule.

The ballistic missile defense system is not capable of intercepting hypersonic glide vehicles; I cannot defend, nor am I tasked to defend, against a hypersonic glide vehicle attack. It is imperative that the Department of Defense develop and field an integrated space-based domain awareness network capable of detecting and tracking ICBMs, hypersonic weapons, and cruise missiles as quickly as possible. I require the ability to detect, track, and assess potential missile threats of all types to immediately determine whether an attack is underway and provide national leaders with as much time and as many options as possible.

**Cruise Missile Defense:** Russia has the capability today to hold targets in the United States and Canada at risk with long-range air- and submarine-launched conventional cruise

missiles. These highly precise and stealthy systems highlight the need for policy determinations regarding what must be defended along with continued demonstrations of resiliency and hardening. It is also necessary to quickly improve domain awareness by fielding sensors such as OTHR and the integrated undersea surveillance system (IUSS)—and by integrating and sharing the collected data with global stakeholders. To successfully deter aggression and defend the homeland, we must be able to detect and track the submarines, aircraft, and surface ships that carry weapons systems capable of striking the homeland before they depart from their home stations. We also need to improve our capability to defeat those launch platforms before they are within range of their targets.

It is vital that we accept risk today in order to compete against highly advanced and determined peers in the near future. As an example, the military Services must be allowed to retire aging platforms, especially those that cannot survive in combat against highly advanced and lethal capabilities already fielded and proliferated by our peer competitors. The Department must re-invest the savings from those divestments to resilient domain awareness and other capabilities necessary to increase the decision space that will provide national leaders with options to deter, de-escalate, and defeat threats. Those difficult choices are critical to integrated deterrence today and avoiding the unthinkable tomorrow.

## **CONCLUSION**

The global strategic environment will remain complex and extraordinarily dynamic for the foreseeable future. Our competitors already possess the capability to strike the homeland with kinetic and non-kinetic means, and they will take full advantage of slow responses, technological shortfalls, and policies that do not reflect the realities of the modern era.

USNORTHCOM and NORAD, in concert with our interagency colleagues, will continue our unending mission to defend our homelands and protect our citizens from threats in all domains, institutions, culture, and process. However, our commands' ability to effectively deter threats to the homeland will increasingly rely on improved domain awareness and providing leaders with the time and options necessary for success. Just as important, it is critical for military leaders and civilian policymakers to acknowledge that all regional challenges have global implications and present potential risk to the U.S. homeland. Our competitors have demonstrated their intent to leverage any opportunity to advance their own interests—often to the detriment of our own.

Defense of the homeland and continental defense remains the absolute priority for both USNORTHCOM and NORAD, and our commands' constant vigilance will be a key element of the integrated deterrence that safeguards our citizens and advances our vital national interests. It is my profound honor to lead all of the proud U.S. and Canadian military and civilian personnel of USNORTHCOM and NORAD as they stand our never-ending watch over

our nations. I look forward to working with all of our vital partners as we continue to advance those efforts in the defense of our nations. We Have the Watch.

\*\*\*\*\*

**Document No. 3. Office of the Under Secretary of Defense for Policy, “The Sea-Launched Cruise Missile-Nuclear (SLCM-N): Policy and Strategy,” as printed in, “Strengthening Deterrence and Reducing Nuclear Risks, Part II, The Sea-Launched Cruise Missile-Nuclear (SLCM-N),” *Arms Control and International Security Papers*, Vol. 1, No. 11 (July 23, 2020).**

### **Executive Summary**

A nuclear-armed sea-launched cruise missile (SLCM-N) is one of two supplemental capabilities identified in the 2018 Nuclear Posture Review (NPR) as needed to address specific regional deterrence problems that have emerged in recent years as a result of developments in the forces and doctrine of nuclear competitors.

First, there is a growing disparity between the nonstrategic nuclear weapons (NSNW) fielded by the United States and the Russian Federation. While in the past this imbalance was manageable, changes in Russian behavior in recent years, their continued investment in these systems, and their refusal to consider an arms control alternative has created a more serious risk, requiring the United States to take countervailing steps to address this disparity.

Second, there are credible concerns that these capabilities are central to a Russian approach to regional conflict that envisions the early, limited use of nonstrategic weapons to end a war on terms favorable to Russia. This approach may be premised on Russia’s belief that its expanding anti-access/area denial (A2AD) networks will be able to neutralize the airborne nuclear deterrent forces of the United States and NATO. In the future, it is possible that China could adopt a similar doctrine. Developing and fielding SLCM-N signals the leaders of nuclear competitors in a concrete way that the United States has the capability and will to maintain operationally effective nuclear options to deter regional aggression.

Third, the deteriorating global nuclear threat environment is a source of concern to regional allies and partners, who are looking to the United States to strengthen the framework for assurance and extended deterrence vital to their own security and non-nuclear status. SLCM-N will bolster allied confidence in U.S. security guarantees.

Through its unique attributes, SLCM-N is a tailored response to these challenges to deterrence stability. It will lower the risks of nuclear conflict, bolster the confidence of allies, and restore a degree of balance in nonstrategic nuclear weapons that could create conditions

more conducive to addressing this category of forces through arms control. This approach does not require nuclear testing or new nuclear weapons nor does it violate any treaty.

### **Nuclear Sea-Launched Cruise Missile: Policy and Strategy**

“Russia’s non-strategic nuclear weapons stockpile is of concern because it facilitates Moscow’s mistaken belief that limited nuclear first use, potentially including low-yield weapons, can provide Russia coercive advantage in crises and at lower levels of conflict. The 2018 Nuclear Posture Review calls for adjustments to U.S. nuclear forces to close this perceived gap on the escalation ladder and reinforce deterrence against low-yield nuclear use.”

—General Scaparrotti, Former CDRUSECOM, March 5, 2019

#### **I. Overview**

This paper addresses the strategic requirement for and deterrence benefits of a nuclear-armed sea-launched cruise missile (SLCM-N). The 2018 Nuclear Posture Review (NPR) identified this system as a necessary supplement to the Triad. The paper focuses on the deterrence rationale for SLCM-N, the unique attributes of SLCM-N in the emerging operational environment, arms control and stability considerations, and frequently heard critiques of SLCM-N.

The key points put forward in this paper are as follows:

1. The NPR supplemental capabilities are modest and sensible adaptations that respond to genuine deterrence risks that have arisen in recent years.
2. SLCM-N responds in a unique way to a deteriorating nuclear threat environment and a growing imbalance in nonstrategic nuclear weapons.
3. SLCM-N will play an important role in tailored deterrence strategies in both Europe and Asia.
4. SLCM-N’s operational attributes reinforce its value as a regional deterrence capability.
5. SLCM-N is not a redundant capability and does not duplicate the mission of other existing or planned nuclear systems.
6. Developing SLCM-N is an urgent task and initial steps in the acquisition process are underway.

#### **II. The Deterrence Requirements for Supplemental Capabilities in the Nuclear Posture Review**

The NPR is part of a larger set of strategic initiatives reshaping U.S. national security to strengthen the nation’s ability to deter conflict, defend vital interests, and promote global security. The National Security Strategy (NSS) and the National Defense Strategy (NDS)

emphasize new challenges to deterrence arising from renewed great power competition and the growing capabilities of rogue regimes. To respond to these challenges, the United States must restore its competitive advantage and develop the capabilities needed to deter and defend across an increasingly dynamic set of threats. Although nuclear forces are but one element of this, they remain foundational to U.S. strategy and an effective means to deter a number of significant threats to the United States and its allies and partners. Accordingly, we will sustain a nuclear force that both meets the requirements of credible deterrence today and anticipates future risks.

Key among the adaptations identified in the NPR are modest enhancements intended to supplement the capabilities provided by Triad forces (submarines, intercontinental ballistic missiles, and strategic bombers). These supplemental capabilities are a response to developments in competitor forces and doctrine that undermine deterrence stability at the regional level. Several challenges stand out: a deteriorating global nuclear threat environment, a growing disparity in nonstrategic nuclear weapons (NSNW), a more complex operating environment for nuclear-capable aircraft, the requirements of allied assurance and extended deterrence; and the possibility that an adversary will employ a limited number of nuclear weapons—including low-yield weapons—to deter U.S. military responses to regional aggression. To address this range of risk, we have adapted one existing capability and we will reconstitute—in updated form—a second. We have fielded a small number of existing submarine-launched ballistic missile (SLBM) warheads with a low-yield capability. In the longer-term, we will develop a modern nuclear-armed sea-launched cruise missile—a capability previously fielded but retired by 2012 in hopes of persuading other states to eliminate these and related weapon systems.

These programmatic initiatives are not being undertaken lightly, but in the belief they are necessary to provide greater flexibility in tailoring strategies to deter and if necessary respond to limited nuclear threats, and to signal to Russia—and to China, which is also developing theater-range, dual capable systems—that there is no exploitable advantage to be gained from the threat or use of nuclear weapons in a regional conflict. Despite arguments that are commonly heard, the goal is not to mimic Russia's strategy or match its much more expansive nonstrategic arsenal. The NPR supplemental capabilities fall well short of doing so. Nor do they signal a shift toward a strategy emphasizing nuclear warfighting or a lower threshold for nuclear employment. To the contrary, they are intended to ensure that nuclear war is less rather than more likely by demonstrating to adversaries that the United States is fully prepared to deter nuclear threats at every stage of an escalating crisis or conflict. This will raise, not lower, the "nuclear threshold." The supplemental capabilities are consistent with U.S. obligations under the New START Treaty. They will not add to the number of nuclear weapons in the U.S. nuclear stockpile, create arms race pressures, upset the overall nuclear balance, or undermine stability. They will leverage existing missile and warhead programs. Deployed at sea, these systems will not place added burdens on allies for basing and support.

### III. SLCM-N: Unique Attributes and Benefits

#### *SLCM-N Directly Addresses the Growing Disparity in Nonstrategic Nuclear Weapons*

SLCM-N has particular value as a response to one of the more troubling trends in adversary nuclear capabilities—the imbalance in NSNW and the continued and increasing Russian investment in this category of forces. This investment indicates Russian authorities may view these capabilities as flexible and usable on the battlefield as an adjunct to conventional forces. Russia is modernizing an active stockpile of up to 2,000 such weapons that it can deploy on naval platforms, aircraft, and with ground forces. This includes at least twenty individual weapons or weapon systems that encompass ballistic missiles, ground-, air- and sea-launched cruise missiles, gravity bombs, torpedoes, depth charges, and surface-to-air missiles. By contrast, NSNW deployed by the United States in Europe in support of NATO remain modest in number and limited to one type of weapon. This capability is being modernized but not expanded in size.

The asymmetry in NSNW in Europe has long been a source of concern precisely because of the fear that it could contribute to deterrence instability in a crisis. This danger was highlighted a decade ago by the Strategic Posture Commission led by former secretaries of defense William Perry and James Schlesinger, by the United States Senate in the New START Resolution of Ratification, and by the 2010 NPR.

*Strategic Posture Commission: “The imbalance in NSNW is of rising concern and an illustration of the new challenges of strategic stability as reductions in strategic weapons proceed.”*

*New START Resolution of Ratification: “The US will seek to initiate...not later than one year after entry into force of the New START Treaty, negotiations with the Russian Federation...to address the disparity between the non-strategic (tactical) nuclear weapons stockpiles of the Russian Federation and of the U.S.”*

*2010 NPR: “...large disparities in nuclear capabilities could raise concerns on both sides and among US allies and partners, and may not be conducive to maintaining a stable, long-term strategic relationship.”*

For this reason the United States has consistently called on Russia to extend the bilateral arms control framework to include NSNW. With equal consistency Russia has refused to consider these offers. Still, the risk posed by this persistent asymmetry in capability was manageable during a period in which a nuclear crisis seemed a remote possibility. Today, in light of Russia’s recent conduct and its continued investment in these forces, this possibility is less remote and the risk therefore higher. Although the context is different, China’s improved nuclear capabilities, which feature modern, theater-range nuclear systems, may lead to similar risks. Accordingly, mitigating these risks is now a priority, though it does not

require matching Russia's large, diverse NSNW capabilities. It does, however, require conveying, to Moscow in particular, that absent a viable arms control approach, the United States will take steps to develop and field a capability that lessens our strategic vulnerability, tangibly strengthens our regional deterrence posture, and ensures a credible response to any nuclear escalation.

### *SLCM-N Will Play an Important Role in Tailored Deterrence Strategies*

While the disparity in NSNW in Europe is troubling on its own, of greatest concern is the marriage of Russia's large, modern, and diverse nonstrategic nuclear force to a military doctrine that seems to allow for the use of nuclear weapons on a limited scale to protect Russian gains in a local aggression and deter an effective NATO response. Russian leaders might execute such a strategy if they believed it was their best chance to terminate or freeze a conflict on favorable terms—and that the United States and NATO would be constrained in responding proportionately because most available nuclear options carry a high risk of further, unintended escalation or could be defeated by Russia's growing anti-access/area denial (A2/AD) capabilities. This would be a high-risk approach, but Russia's leaders could conclude the risk is acceptable if the stakes were sufficiently high and they believed they enjoyed "escalation advantage" at the nonstrategic nuclear level.

Based on everything we know, this is a credible scenario. To be sure, we understand that the exact elements of Russia's nuclear doctrine are subject to public interpretation and debate—and that nations like Russia are not necessarily transparent in describing their nuclear doctrine publicly. Some degree of ambiguity in assessing adversary doctrine is the norm, not the exception. Therefore, it is not realistic to expect to know with certainty or even a high degree of confidence Russia's policy regarding the circumstances that would trigger limited nuclear use against NATO.

But it would be irresponsible to base our policy on a benign reading of Moscow's intentions and how Russian leaders think about the nuclear threshold and the risks of escalation. Regardless of official doctrine, there are simply too many other factors leading to the inescapable conclusion that Russia is prepared to use force, take risks, and leverage its nuclear weapons to advance its security goals. Prudence dictates that the United States and its allies consider seriously the possibility that Russian leaders could see advantage in the limited use of nuclear weapons in a failed or failing conflict, or to consolidate gains made through a successful local conventional aggression.

The 2018 NPR adopts this prudent stance and outlines an appropriate tailored deterrence strategy for Russia. This strategy emphasizes ensuring Russian leaders do not miscalculate the consequences of a limited initial use of nuclear weapons against NATO and understand clearly that a policy of nuclear escalation will yield no significant advantage and carry grave risks. SLCM-N directly supports this tailored deterrence strategy by providing additional

limited employment capabilities that an adversary will have to consider if contemplating the coercive use of nuclear weapons. The availability of such systems will give an adversary pause, especially if paired with other demonstrations of U.S. and allied resolve, and thus lessen the risk of a catastrophic miscalculation. If a crisis escalates, leaders will have a wider range of options available in the event that the use of nuclear weapons is necessary to restore deterrence. Leadership will want options that are operationally effective and that signal unmistakably the will to defend vital interests and impose significant costs on an adversary—but that can be executed in a way that is perceptibly restrained and has some prospect of managing the risk of further escalation. SLCM-N provides such a capability.

The same deterrence logic applies to East Asia, where we expect a nuclear-armed SLCM to play an equally important role in deterring adversaries and assuring allies. The NPR outlines a tailored deterrence strategy for China that recognizes its push for regional dominance, its goal of countering U.S. power projection operations, its growing theater-range nuclear capabilities, and the potential for any U.S.-China conflict to escalate to the nuclear level. The tailored strategy for China intends to prevent Beijing from mistakenly concluding that it could secure an advantage by, for example, attempting to decouple the United States from its allies through the limited use or threatened use of its theater nuclear capabilities. SLCM-N conveys a clear signal that the United States will maintain graduated nuclear employment options that provide the means to respond effectively to any level of Chinese nuclear escalation.

#### *SLCM-N's Operational Attributes Reinforce Its Deterrence Value*

Regional deterrence of both Russia and China requires nuclear forces that are responsive, reliable and effective in the operational environment likely to characterize a future conflict with either power. The credibility of regional nuclear forces as a deterrent lies not simply in their existence but in their known ability to conduct operations that will impose unacceptable costs on a nuclear aggressor. This is why the NPR outlined a requirement for a theater nuclear system capable of proportional, discriminate response based on survivable, regionally present platforms, and with the necessary range, penetration capability, and effectiveness to hold critical adversary targets at risk.

In particular, regional nuclear systems must be able to operate effectively in the face of Russian and Chinese A2/AD strategies intended to deny U.S. forces the freedom of action to project power and hold adversary operations and territory at risk. Given the major investment both Russia and China have made in A2/AD capabilities (especially advanced integrated air defense systems), each may come to believe it can effectively impede U.S. regional nuclear capabilities in executing their deterrence missions, and thereby secure an exploitable coercive advantage. Dual-capable aircraft may be vulnerable, or perceived as vulnerable, to advanced defensive systems despite enhancements to their stealth and standoff features. As defensive systems continue to improve, there is a risk a potential



adversary may believe it can constrain U.S. ability to respond in a proportional manner to limited nuclear use and that the United States would be deterred from a more escalatory response by the adversary's withheld nuclear capabilities.

This is why SLCM-N is an important capability. Based on highly survivable undersea platforms, SLCM-N will reinforce the credibility of tailored deterrent options in both European and East Asian contingencies. Sea-based systems can exploit an extensive operating area in which they will be difficult to find and destroy, preserving the ability to respond in a timely way to nuclear aggression even if other nonstrategic systems are degraded. In this way, SLCM-N will add to the flexibility and diversity of regional deterrence forces and provide an assured and prompt response capability in demanding operational environments.

Promptness is an important consideration. Employment options that use the airleg of the Triad generally are not considered prompt; they require time to generate and reach the target or launch point. Some time-sensitive, high-priority targets may disperse or launch prior to the arrival of an air asset, potentially making U.S. deterrent threats less credible. Regionally present sea-based systems require far less notice. Operating at a high level of readiness, SLCM-N could strike a target quickly once the order to execute is received. The adversary could not be assured that its high-value mobile strike systems are immune to attack, or that a U.S. response to limited nuclear use would be delayed. This contributes to deterrence credibility.

Finally, a nuclear-armed SLCM force would help to hedge against the possibility of (i) a major technical or operational failure of the SSBN force or another leg of the Triad, and (ii) a significant Russian breakout from arms control limits or a Chinese decision to rapidly expand its nuclear forces. In this way, SLCM-N would enhance the overall reliability and survivability of the U.S. nuclear posture while also supporting tailored deterrence strategies.

#### *SLCM-N Provides Unique Political and Operational Benefits in the Indo-Pacific Region*

In this vast region, we do not permanently station nuclear-capable forces, but rely instead on systems based in or rotating from the continental United States. For many years the now-retired Tomahawk Land Attack Missile-Nuclear (TLAM-N) made an important contribution to assuring regional allies and underwriting our extended deterrence strategy. The ability to provide a regional nuclear presence signaled a high degree of resolve and readiness in a crisis and did not require allies to base nuclear systems on their territory. Restoring that capability with SLCM-N will bolster allied confidence in U.S. nuclear security guarantees and strengthen our comprehensive extended deterrence framework for the region, which also includes non-nuclear strike capabilities, missile defense, exercises and consultation, and the capability, if needed, to forward deploy nuclear-capable bombers and tactical aircraft. As former Under Secretary of Defense for Policy James Miller and former Vice Chairman of the

Joint Chiefs of Staff Admiral Sandy Winnefeld (USN, Ret.) have argued in reference to SLCM-N, “Such a capability not only would provide a credible and survivable option for extended deterrence in Europe, but also would bolster deterrence and assurance in the Pacific.”<sup>1</sup>

#### **IV. Arms Control Considerations**

The existing U.S.-Russia strategic arms control framework, the New START Treaty, does not limit sea-launched cruise missiles or their launchers.<sup>2</sup> While it is conceivable that a future framework could capture these capabilities, this does not seem a realistic basis for planning in the current political environment.

The United States is hopeful that its stated intention and concrete plans to develop and field SLCM-N will lead Russia to conclude that its interests are best served by discussing reductions to or limits on nonstrategic nuclear weapons. Witnessing U.S. resolve to buttress its deterrent forces with a credible, effective capability that can hold important Russian military targets at risk could influence the thinking of Russian leaders. The history of U.S.-Russia nuclear arms control demonstrates that Moscow will engage in serious negotiations only when it faces military capabilities that match or exceed its own and that can impose severe costs. At present, Russia’s leaders see no compelling reason to negotiate on NSNW. In the absence of concrete steps by the United States to bolster its deterrence forces to begin to offset Russian advantages in this category of weapons, Russia is unlikely to change its approach. U.S. policy remains unchanged: should Russia agree to discuss NSNW, and moderate its destabilizing behaviors, it may be possible to reconsider the need for SLCM-N. But we are realistic about the prospects for this outcome.

SLCM-N will not affect the central deterrence relationship between the United States and Russia or the balance between the two side’s strategic nuclear triads. These remain defined by the principles of mutual deterrence, the aforementioned New START agreement (as long it remains in force), and nuclear risk reduction measures (e.g., crisis communications mechanisms). SLCM-N will not be based on a strategic nuclear platform and will not be subject to the New START Treaty limits. SLCM-N will not have intercontinental range. In addition, the destructive power and range of U.S. SLCMs—even if launched as a salvo—would not threaten the ballistic missile forces of major nuclear powers. It is a nonstrategic capability that will not threaten the survivability, or otherwise affect the second strike capability, of an adversary’s strategic deterrent forces.

---

<sup>1</sup> “Bring Back the Nuclear Tomahawks,” Admiral Sandy Winnefeld (USN, ret.) and Dr. James N. Miller, *Proceedings Today*, U.S. Naval Institute, May 2017.

<sup>2</sup> Note that under New START, ballistic missile submarines converted to carry cruise missiles are subject to a limited number of inspections to confirm this conversion process.

## V. Responses to Frequently Heard Critiques of a Nuclear Arms SLCM

**Challenge:** SLCM-N responds to a problem that likely does not exist or is overstated.

**Response:** There is indeed an asymmetry in U.S. and Russian forces and doctrine, and evidence that Russia has acted to widen and exploit it. Our concern is that these gaps in capability and approach are from Russia's vantage highly dynamic—not a static phenomenon but something that provides an exploitable advantage in crisis or war. This could shape the course of regional conflict in a profoundly destabilizing way with a high degree of nuclear escalation risk. This gap therefore has important implications for pre-and intra-war deterrence, and also for extended deterrence and the assurance of allies. The contention offered by some that this gap has been created as a result of our talking about it defies common sense. It will not disappear if we simply stop referring to it. It will only begin to close when we take actions that work to close it. If we ignore it, it will get worse and risks will grow.

More fundamentally, deterrence is concerned with shaping the adversary's perceptions and calculations of risk. Determining the capabilities required for deterrence cannot rely solely on our own sense of what is sufficient with respect to the size or cost of a force. To avoid the dangers of mirror imaging, we must consider how adversaries are likely to view the robustness of U.S. forces, applying the standards, criteria and metrics the adversary might apply based on what we can learn from doctrine, exercises, training, and leadership statements. We must do this even if it challenges our own assumptions. A force that many might consider comprehensive and sufficient for maintaining deterrence even in very challenging contingencies may be viewed differently by adversaries prepare do take risks and in constant search of exploitable advantages derived from perceived or actual asymmetries in capabilities and doctrine. If an adversary appears to believe such advantages exist or can be created, it is a strong signal that our deterrent posture needs to be strengthened in a way that the adversary understands unambiguously.

**Challenge:** SLCM-N is a nuclear warfighting capability that will lower the nuclear threshold and make nuclear war more likely.

**Response:** The United States deploys nuclear weapons to deter attacks on itself, its deployed forces, and its allies and partners. Our nuclear strategy is not premised on preparation for or expectation of extended nuclear exchanges with an adversary. Strategy, doctrine, forces, and exercises all attest to this. The United States maintains a high threshold for nuclear use and would use nuclear weapons only in an extreme circumstance. All Nuclear Posture Reviews, including the current one, have been clear on this point. The fact that SLCM-N adds to the options leadership has for the limited use of nuclear weapons to restore deterrence is not a departure from past policy and practice. For decades the United States has maintained selective use options and has continually assessed the credibility of these options in light of

changing strategic and operational conditions. The decision to pursue SLCM-N simply reflects our current assessment of what is required to ensure stable deterrence going forward.

**Challenge:** SLCM-N will lead to or accelerate a nuclear arms race.

**Response:** The United States is doing nothing to encourage a new arms race in nonstrategic nuclear weapons. SLCM-N (as is the low-yield SLBM) is a modest response to Russia's comprehensive program to modernize and expand its broad, multi-domain suite of NSNW. It is not our goal to match Russia's deployments. Our purpose is to strengthen deterrence and reduce the risks associated with what will continue to be an imbalance in NSNW. The United States has long sought to advance this objective by extending the arms control regime to account for NSNW, but has repeatedly been rebuffed by Russia. It is possible that our decision to develop and field SLCM-N will give pause to Russia's leaders and lead them to reconsider their opposition to negotiated NSNW limits or reductions. However, should this materialize and should Moscow in tandem take other important steps to promote stability, it may be possible to reconsider the need for SLCM-N.

**Challenge:** SLCM-N operations will detract from conventional operations.

**Response:** Potential tradeoffs with conventional operations will be addressed as the programmatic options for SLCM-N are evaluated, the number of required weapons is defined, and a concept of operations is developed. Before these factors are fully examined, it is difficult to assess possible tradeoffs. There is no basis today to conclude that SLCM-N operations will unduly degrade other naval missions. Our expectation is that platforms will have capacity to deploy a large number of cruise missiles, and that other naval platforms not assigned the SLCM-N mission will be able to deliver a significant amount of conventional firepower.

**Challenge:** How is DoD rapidly developing a modern SLCM-N?

**Response:** The development of SLCM-N will follow the Joint Capabilities Integration and Development System (JCIDS). The Navy has published an Initial Capabilities Document (ICD) to identify the attributes of a system to fill the requirement identified in the NPR. OSD's Office of Cost Assessment and Program Evaluation (CAPE) has provided initial and supplementary guidance for a SLCM-N Analysis of Alternatives (AoA) study. The AoA guidance encompasses a full range of alternatives, but focuses effort on likely solutions to provide the best opportunity to establish funding in the FY 2022 budget request with the strongest of the alternatives.

## **VI. Conclusion**

We cannot ignore the disparity in U.S. and Russian nonstrategic nuclear capabilities. While we hope that an arms control solution to this problem will be possible, Russia has made and continues to make a significant investment in these forces. Nor can we dismiss China's development of theater-range nuclear-capable systems. These investments raise a compelling concern that Russia and China may see some exploitable advantage in the use or threatened use of these systems. This raises the risk of nuclear war. To lower this risk, and to ensure the nuclear threshold remains as high as possible, we must be certain we possess highly credible response options for any adversary's limited use of nuclear weapons. The SLCM-N directly addresses this deterrence requirement.

