

HOUSE COMMITTEE ON ARMED SERVICES  
SUBCOMMITTEE ON STRATEGIC FORCES

STATEMENT OF  
ADMIRAL C. D. HANEY  
COMMANDER  
UNITED STATES STRATEGIC COMMAND  
BEFORE THE  
HOUSE COMMITTEE ON ARMED SERVICES  
SUBCOMMITTEE ON STRATEGIC FORCES  
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## **INTRODUCTION**

Chairman Rogers, Ranking Member Cooper and distinguished members of the committee, I am honored to be here today. Thank you for the opportunity to provide testimony on the posture of United States strategic forces, my assessment of the President's Fiscal Year 17 (FY17) Budget, and how United States Strategic Command (USSTRATCOM) is confronting today's complex global security environment. I am also pleased to be here with Principal Deputy Under Secretary of Defense for Policy, Brian McKeon. I thank you all for your continued support to our Nation's defense.

I have the privilege of leading a motivated team of strategic warriors focused on mission excellence. While today, the Nation's strategic nuclear deterrent force remains safe, secure, effective and ready, we are working diligently to improve the resilience, responsiveness, credibility and flexibility of our operational plans and capabilities. USSTRATCOM is focused on deterring strategic attack, providing assurance to our allies and partners, and providing warfighting solutions to other Combatant Commands and partners across the spectrum of operations. While executing our global responsibilities, we continue to forge enduring partnerships with agencies and organizations across the U.S. government, academia, commercial industry, and Allied nations.

The momentum we have established is largely due to those who dedicate themselves to national security in spite of uncertainty and resource challenges: the Soldiers, Sailors, Airmen, Marines, and civilians who carry out and support our strategic missions. Thank you for the opportunity to publicly acknowledge their service, devotion and professional skill.

Over the last two years, I have gained considerable insight regarding the progress and work remaining to deliver comprehensive strategic deterrence, assurance and escalation control.

My focus here is to provide clarity, make recommendations on required steps for continued success, and demonstrate how USSTRATCOM supports strategic stability and national security.

Much remains to be done to sustain and modernize the foundational nuclear deterrent force that we need to protect the Nation from existential threats in an increasingly uncertain and unpredictable environment. We must continue to meet critical investment timelines to ensure that aging platforms and weapons systems do not reach the point at which their viability becomes questionable.

The President's Budget offers a balanced approach to national priorities and fiscal realities, and reduces some accumulated risk as we pursue modernization across USSTRATCOM mission areas. The Bipartisan Budget Act of 2015 provided near-term fiscal stability for these critical missions, and we appreciate Congressional and White House support in this effort. I support continued bipartisan efforts to achieve long-term relief from the constraints imposed by the Budget Control Act of 2011, especially given the multi-year acquisition timelines required to modernize our strategic systems.

Maintaining and improving comprehensive strategic deterrence, assurance and escalation control requires a multi-faceted, long-term approach to investing in strategic capabilities and a renewed, multi-generational commitment of intellectual capital. As I look at trends in the security environment, continued long term investment is needed to ensure that current progress transitions into long-term success. Our allies and adversaries are observing and assessing the fiscal emphasis placed on our Nation's strategic deterrence and assurance capabilities. We cannot afford to send mixed messages on their importance by underfunding them.

## **GLOBAL SECURITY ENVIRONMENT**

Today's global security environment is complex, dynamic and volatile; perhaps more so now than at any other time. The dangers presented by this unpredictable security environment are compounded by the continued propagation of asymmetric methods, the unprecedented proliferation of advancing technologies, and the increasingly provocative and destabilizing behavior by current and potential adversaries. Some nations are investing in long-term military modernization programs, including capabilities that could pose an existential threat to the United States. A number of others are developing, sustaining, or modernizing their nuclear forces, including weapons and platforms that are mobile, hardened and underground.

**Russia.** Russia warrants our attention. Its new security strategy makes clear that Russia seeks to re-assert its great power status. Russia is modernizing its conventional and strategic military programs, emphasizing new strategic approaches, declaring and demonstrating its ability to escalate if required, and maintaining a significant quantity of non-strategic nuclear weapons. Russia has engaged in destabilizing actions in Syria and Ukraine (Eastern and Crimea), while also violating the Intermediate-range Nuclear Forces (INF) Treaty, and other international accords and norms. Russia is also developing counter-space and cyber capabilities

Despite these activities, and assertions by some that the United States and Russia are in a nuclear arms race, there is continued adherence to the New Strategic Arms Reduction Treaty (New START) by both nations. In compliance with a series of treaties, the United States has reduced its stockpile by 85 percent relative to its Cold War peak. Instead of dozens of delivery systems, we now have four strategic delivery platforms. We seek no new military capabilities in our nuclear forces. Rather, we seek to retain and modernize only those capabilities needed to sustain a stable and effective deterrent capability. We are on track to achieve New START limits of 1550 deployed warheads and 700 deployed delivery systems by February 2018.

The benefit of New START is that it promotes stability by maintaining equivalency in nuclear weapon numbers and strategic capability. It also promotes transparency via inspections and helps assure our non-nuclear allies they do not need their own nuclear deterrent capabilities. However, to maintain strategic stability as we draw down to New START central limits, the remaining systems must be safe, secure, effective and ready.

**China.** In addition to pursuing regional dominance in the East and South China Seas, China continues making significant military investments in nuclear and conventional capabilities. China is re-engineering its long-range ballistic missiles to carry multiple nuclear warheads and continues to develop and test hyper-glide vehicle capability. China's pursuit of conventional prompt global strike capabilities, offensive counter space technologies, and exploitation of computer networks raises questions about its global aspirations. While China periodically reminds us of its “No First-Use” nuclear policy, these developments – coupled with a lack of transparency on nuclear issues such as force disposition and size – impact regional and strategic stability.

**North Korea.** North Korea's behavior over the past 60 years has been very problematic. Today, North Korea continues heightening tensions by coupling provocative statements and actions with advancements in strategic capabilities, including claims of miniaturized warheads; developments in road mobile and submarine launched ballistic missile technologies. Most recently, North Korea has conducted its fourth nuclear weapons test and another missile launch of a satellite into space, furthering its ICBM research. These actions show disdain for United Nations Security Council resolutions and a dangerous lack of regard for regional stability.

**Iran.** As Iran follows the mandates of the Joint Comprehensive Plan of Action, we must be vigilant to detect if Iran ever shifts its intentions to pursue a nuclear weapon. Iran continues

to develop ballistic missiles and cyberspace capabilities – and we remain focused on countering its destabilizing activities in the region.

**Violent Extremist Organizations (VEOs).** Ungoverned or ineffectively governed regions remain incubators for those who seek to attack the world’s peaceful societies. VEOs recruit and operate freely across political, social, and cyberspace boundaries. The effect of weapons of mass destruction (WMD) in the hands of VEOs could be catastrophic, and highlights the importance of our non-proliferation and counter WMD efforts.

In summary, the global strategic environment is increasingly complex. Unlike the bipolarity of the Cold War, today's multi-polar world with state, non-state, and mixed-status actors is more akin to multiplayer, concurrent and intersecting games of chess that severely challenge regional and global security dynamics. Future conflicts will not be contained within prescribed borders, stove-piped domains, or segregated areas of responsibility. We must view threats as transregional, multi-domain and multi-functional, requiring a comprehensive approach to strategic deterrence, assurance and escalation control.

## **USSTRATCOM IN THE 21<sup>ST</sup> CENTURY**

USSTRATCOM counters diverse and complex threats through the execution of its fundamental mission: **to detect and deter strategic attacks against the U.S. and our allies, and to defeat those who attack if deterrence fails.** USSTRATCOM is assigned nine distinct responsibilities: **Strategic Deterrence; Space Operations; Cyberspace Operations; Global Strike; Joint Electronic Warfare; Missile Defense; Intelligence, Surveillance and Reconnaissance; Countering Weapons of Mass Destruction; and Analysis and Targeting.** These diverse assignments are strategic in nature, global in scope, and intertwined with Joint Force capabilities, the interagency process and the Whole-of-Government approach. **Each**

**mission supports or is interconnected with the others, and their combined capabilities enable a comprehensive approach to strategic deterrence, assurance and escalation control in the 21<sup>st</sup> century.**

Deterrence is a fundamentally human endeavor, firmly rooted in psychology and social behavior. At the most basic level, deterrence is achieved through one of two mechanisms. The first is an aggressor's recognition that unacceptable costs may be imposed for taking an action and recognition that forgoing this action may result in lesser costs. The second is an aggressor's belief that the contemplated action will not produce its perceived benefit, or that not acting will produce a greater perceived benefit. These elements combine to convince potential adversaries that they will not succeed in an attack, and even if they try, the costs will far outweigh the benefits. USSTRATCOM's capabilities underpin these fundamental elements of deterrence.

Achieving comprehensive deterrence, assurance and escalation control requires nuclear weapons systems along with a robust intelligence apparatus; space, cyberspace, conventional, and missile defense capabilities; global command, control, and communications; and comprehensive plans that link organizations and knit their capabilities together in a coherent way.

**Priorities.** USSTRATCOM is guided by my six overarching priorities:

**1. Deterring strategic attack against the United States and providing assurance to our allies.** Strategic attacks can occur through a variety of means in any domain. They may impact many people or systems, affect large physical areas, act across great distances, persist over long periods of time, disrupt economic or social structures, or change the status quo in a fundamental way.

**2. Providing the Nation with a safe, secure, effective and ready nuclear deterrent force.** Foundational documents such as the 2010 Nuclear Posture Review, the 2013 Report on Nuclear Weapons Employment Strategy, the 2014 Quadrennial Defense Review (QDR), and the 2015 National Military Strategy have consistently repeated this mandate. I am committed to providing our Nation with a viable and credible nuclear deterrent force.

**3. Delivering comprehensive warfighting solutions.** To effectively deter, assure, and control escalation in today's security environment, threats must be surveyed across the "spectrum of conflict." Escalation may occur at any point, in varying degrees of intensity, with more than one adversary, in multiple domains, to include "below threshold activities" that would not ordinarily propel international action. Our actions and capabilities must convince any adversary that they cannot escalate their way out of a failed conflict, and that restraint is always the better option. Doing so requires a deeper, broader understanding of our potential adversaries, so that we can deny action; hold critical nodes at risk; and prevent activities, perceptions and misperceptions from escalating. We must also look at our military capabilities in a holistic manner, and fully integrate them within our other elements of national power. We must pursue a Whole-of-Government approach to deterrence, including allies and partners in our efforts, with ready forces in all domains.

**4. Addressing challenges in space and cyberspace with capability, capacity and resilience.** Space capabilities remain foundational to our way of life not only for the United States but for the international community at large. Yet some nation states are investing in counter-space capabilities. We must assure our continued access to space through improved space situational awareness, operating procedures, resiliency and other operational concepts central to our ability to maintain an advantage in space. Cyberspace underpins all of my mission



areas and has become a critical facet of national power. We must continue to develop a robust Cyber Mission Force with the authorities, skills and resources to protect our DOD networks against a maturing set of cyberspace threats. Additionally, cyber defense of future networked systems must be a design priority.

**5. Building, sustaining and supporting partnerships.** We aim to work seamlessly with the other Combatant Commands, across the federal government, commercial sector, academia and with partners and allies to apply the scope of the USSTRATCOM portfolio toward a synchronized pursuit of national objectives. This robust interaction must occur at all levels at USSTRATCOM and includes operations, planning, exercising and wargaming.

**6. Anticipating change and confronting uncertainty with agility and innovation.** Sound decision-making requires thorough analysis to prioritize our activities with flexible, agile and adaptable thinking. This effort includes a variety of wargames, demonstrations and exercises to evaluate deterrence and escalation control options. We will support the DOD Defense Innovation Initiative and the associated Advanced Capability and Deterrence Panel's efforts. This will help us identify new operational concepts, develop cutting edge technology, and enable a continuing evolution of ideas on how to deter current and potential adversaries.

## **MISSION AREA CAPABILITIES & REQUIREMENTS**

We must maintain a military capability that provides our leadership with the decision space to respond in the best interest of the United States. This includes the ability to mitigate current and future risk as it pertains to nuclear, space and cyberspace threats. Therefore, prioritizing resources to meet our requirements necessitates a thoughtful assessment of national priorities in the context of fiscal realities. The President's Budget supports my mission requirements, but there is no margin to absorb risk. Any cuts to the budget will hamper our

ability to sustain and modernize our military forces, and will add significant risk to our strategic capabilities.

### **Nuclear Deterrent Forces**

Today, America's nuclear forces remain safe, secure, effective and ready. For more than 70 years, thanks in part to our credible nuclear forces, the United States has deterred great power war against nuclear-capable adversaries.

**Nuclear Triad.** Our nuclear Triad is a requirement. The policy of maintaining a nuclear Triad of strategic nuclear delivery systems was most recently re-iterated in the 2014 QDR. Our Intercontinental Ballistic Missiles, Ballistic Missile Submarines, Air-Launched Cruise Missiles, and nuclear capable heavy bombers and associated tankers each provide unique and complementary attributes that together underpin strategic deterrence and stability—and each element is in need of continued investment. The Triad provides a hedge against technical problems or changes in the security environment and must consist of independently viable weapons systems and platforms which present adversaries with a complex, multi-pronged problem. The FY 2017 budget request funds the Ground Based Strategic Deterrent program to replace our aging Minuteman ICBM fleet, which for decades have served to complicate an adversary's decision to launch a comprehensive counterforce strike on the United States. The FY 2017 budget request funds the Ohio-Replacement Program to ensure the uninterrupted deployment of the Triad's most survivable leg. The Long Range Strike-Bomber, Long Range Stand-Off Cruise Missile, and B61-12 gravity bomb are needed to provide the flexibility, visibility and ability to forward-deploy and to support our extended deterrence commitments to our allies.

**Intercontinental Ballistic Missiles (ICBMs).** Our ICBM force provides a responsive, highly reliable and cost effective deterrent capability. To maintain an effective Minuteman III force through 2030, USSTRATCOM supports several near-term sustainment efforts, including ICBM Fuze Modernization, Launch Control Center Block Upgrade, and Airborne Launch Control System Replacement. Vital ICBM security improvements include a UH-1N Helicopter Replacement, Payload Transporter Replacement and ICBM Cryptographic Upgrade. Beyond 2030, the Ground Based Strategic Deterrent program is essential to recapitalize the ICBM force prior to Minuteman age out I fully support an integrated Ground Based Strategic Deterrent weapon system that recapitalizes flight systems, ground launch systems, command and control, and support equipment. I am encouraged by the ongoing Air Force and Navy effort to study the feasibility of sharing common technology between their respective programs in order to reduce costs and preserve the unique skills required to field capable ballistic missile weapon systems.

**Ballistic Missile Submarines (SSBNs).** Recapitalizing our sea-based strategic deterrent force remains my top modernization priority. The Navy's SSBNs and Trident II D5 ballistic missiles constitute the Triad's most survivable leg. The Ohio-class SSBN fleet is undergoing significant sustainment efforts to maintain our nation's required high operational availability and extend the life of the D5 ballistic missile. USSTRATCOM continues to strongly support and work with the Navy as it modernizes the SSBN fleet. The Ohio Replacement SSBN, currently in development and expected to be fielded in 2031, will continue to serve as the Nation's survivable strategic deterrent into the 2080s. Despite a hull life extension from 30 to 42 years, the current Ohio-class will quickly approach the end of its effective service life. No further extension is possible. Any further delay will put the reliability of our sea-based nuclear deterrent at unacceptable risk. In addition, we must continue our commitment to the United Kingdom to

develop and field the Common Missile Compartment to ensure both nations' SSBNs achieve operational capability to replace the existing platforms.

**Heavy Bombers.** Our dual-capable B-52 and B-2 bombers are the most flexible and adaptable leg of the nuclear Triad and provide significant conventional capabilities. Bombers play a key role in stabilizing and managing crises by providing a visible signaling option and rapid hedge against operational and technical challenges in other legs of the nuclear Triad. Ongoing and planned sustainment and modernization activities, to include associated Nuclear Command, Control and Communications upgrades, will ensure our bombers provide credible deterrent capabilities until their planned end-of-service-life. I fully support the Air Force program for fielding a new, highly survivable penetrating conventional and nuclear Long Range Strike Bomber (LRS-B). When coupled with a new Long Range Stand-Off (LRSO) cruise missile and the B61-12 gravity bomb, the LRS-B will provide the President with flexible options to address a range of contingencies in non-permissive environments. Maintaining an air-delivered standoff and direct attack capability is vital to meeting our strategic and extended deterrence commitments and denying geographic sanctuaries to potential adversaries. The new LRSO is needed to replace the aging Air Launched Cruise Missile (ALCM), which has far exceeded its originally planned service life, is being sustained through a series of service life extension programs, and is required to support our B-52 bomber fleet. Likewise, the B61-12 is needed to extend the life of aging gravity nuclear weapons and provide continued viability for both the B-2 strategic bomber and dual capable fighter aircraft supporting our NATO and extended deterrence commitments.

**Foundational to the nuclear triad is a synthesis of dedicated sensors, assured command and control, nuclear weapons and their enabling infrastructure, treaties and non-proliferation activities.**

**Sensors.** Indications and warning are necessary for maximum decision space, and strategic missile warning remains one of our most important capabilities. Along with persistent and tailored intelligence, our Integrated Tactical Warning and Attack Assessment network provides timely, accurate, unambiguous and continuous tactical early warning, allowing us to select the most suitable course of action in rapidly developing situations. While the Defense Support Program is nearing the end of its operational life, the Space-Based Infrared System program is on track to provide continuous on-orbit warning. The survivable and enduring segments of these systems, along with Early Warning Radars and nuclear detonation detection elements, are in urgent need of sustainment and modernization. We must continue to maintain legacy systems and address the ever-increasing risk to mission success. Prompt and sufficient recapitalization of these critical facilities and networks—to include electromagnetic pulse protection and survivable enduring communications with other nodes in the system—will be pivotal in maintaining a credible deterrent.

**Nuclear Command, Control and Communications (NC3).** All USSTRATCOM missions require robust global Command, Control, Communications, and Computer (C4) capabilities and infrastructure supporting the President's national-decision making process across a spectrum of scenarios. These communications capabilities are crucial to providing the President and his key advisors the right information to expand decision space. USSTRATCOM is teaming with the White House, national laboratories, and the private sector to develop a Global C4 system, setting the conditions for timely, informed National decision making

anywhere on the globe. The Council on Oversight of the National Leadership Command, Control and Communications System has proven effective in synchronizing and prioritizing modernization efforts, and articulating those priorities to Congress.

Maintaining a credible nuclear deterrent for the long term requires recapitalization of key systems and capabilities throughout the NC3 architecture. The unpredictable challenges posed by today's complex multi-domain, multi-threat security environment make it increasingly important to optimize our aging NC3 systems architecture while leveraging new technologies. Maintaining nuclear deterrence and strategic stability requires a command and control architecture comprised of interdependent fixed and mobile systems and nodes that deliver capability throughout the space, air and land domains. Through continued funding for NC3 modernization programs, we can ensure effective command and control of the Nation's forces well into the future.

In space, we are transitioning from Military Strategic and Tactical Relay (MILSTAR) to Advanced Extremely High Frequency (AEHF) satellite communications systems. The AEHF satellite constellation system, coupled with requisite ground node and airborne platform Family of Advanced Beyond Line-of-Sight terminals (FAB-T) and the Presidential and National Voice Conferencing (PNVC) system, will extend enhanced capabilities to enable collaboration between the President and senior advisors under any circumstance and also assure connectivity with the nuclear forces.

Our efforts to field an air layer network supported by AEHF and a modernized Very Low Frequency/Low Frequency (VLF/LF) capability will increase resiliency and reliability across the NC3 architecture and begins to address the emerging threats to our space-based communications. I support the investment plan to replace our aging very low frequency receivers on the E-6B

Airborne Command Post (ABNCP) and the E-4B National Airborne Operations Center (NAOC), providing assured, world-wide survivable communications into the future. Additionally, the Air Force continues to fund the very low frequency receiver on the B-2 bomber fleet, and began a program to install next generation protected, assured, and survivable communications on the B-2.

Within the land component, there are efforts underway to upgrade fixed and mobile warning systems to enable them to leverage the evolving Space Based Infra-Red System (SBIRS) capability. Progress has also been made on the construction of the new USSTRATCOM Command and Control (C2) Facility, which will support all our missions and will be a key component of our future nuclear and national C2 architecture. The C2 Facility, which is on track for occupancy in 2018, serves as a visible reminder to adversaries of the importance and national commitment to modernize our aging NC3 facilities.

**Weapons and Infrastructure.** Today's stockpile remains safe, secure, effective, and meets operational requirements. However, our nuclear weapons (now averaging 27 years of service) and supporting infrastructure (some of which date back to the Manhattan Project) are in dire need of modernization and life extension. Surveillance activities, Life Extension Programs (LEPs), and Stockpile Stewardship efforts are essential to mitigating age-related effects and incorporating improved safety and security features without a return to underground nuclear explosive testing. Continued talent pool investment with our nuclear scientists and engineers is also paramount to providing viability to our stockpile requirements.

As a member of the Nuclear Weapons Council (NWC), I work closely with my DOD and Department of Energy National Nuclear Security Administration (NNSA) counterparts to ensure we maintain a safe, secure, and effective nuclear stockpile. Active and sustained execution of the NWC's long-term "3+2" strategy to deliver three ballistic missile and two air-delivered

warheads is crucial to addressing near-term technical needs and future capability requirements. W76-1 and B61-12 LEPs are on track and are necessary to maintain confidence in the reliability, safety and intrinsic security of our nuclear weapons. Additionally, early activities are underway to synchronize the LRSO cruise missile program with the W80-4 warhead LEP to ensure these programs are fielded in time to maintain a viable stand-off nuclear capability. The President's Budget ensures schedule alignment of the cruise missile and its associated warhead.

**Treaties.** International agreements such as New Strategic Arms Reduction Treaty (New START), the Open Skies Treaty (OST), and the Intermediate-range Nuclear Forces (INF) Treaty contribute to strategic stability through transparency, confidence building, and verification. The State Department has primary responsibility for treaty administration, and USSTRATCOM remains closely involved in their execution. While these agreements have served valuable roles in promoting strategic stability, treaty violations are a significant cause for concern.

In meeting treaty obligations, the United States Air Force has eliminated all non-operational intercontinental ballistic missile silos, and is placing 50 intercontinental ballistic missiles into a non-deployed status. All intercontinental ballistic missiles now carry only a single warhead. The Air Force has also eliminated non-operational B-52G series heavy bombers, and is converting 42 B-52H's to conventional-only bomber missions. Additionally, the United States Navy is sealing four launch tubes on each Ohio class SSBN, removing 56 launch tubes from accountability under New START.

**Budget.** Sustaining and modernizing the nuclear enterprise infrastructure is crucial to maintaining a viable nuclear deterrent force. It is impressive to see today's systems working well beyond their expected service life, but we cannot rely on that indefinitely. Aging weapon



systems and supporting infrastructure are stressing our ability to maintain a viable and credible force.

I share concerns about the cost of modernization, but the greater worry is the cost if we do not make needed investments. To reverse the long trend of flat or even declining resources, there must be a sustained, multi-decade investment program to our weapons, delivery systems and supporting infrastructure. As stated by the Congressional Budget Office, the expected cost of nuclear forces represents roughly 5 percent to 6 percent of the total costs of the planned defense budgets for the next ten years. The importance of the foundational nuclear deterrent force to national security, assurance to our allies, our non-proliferation objectives and strategic stability far outweigh the expense of recapitalization. Failing to provide the resources requested in the FY 2017 budget request would delay the development of these programs and unacceptably degrade our credibility and ability to deter and assure. Our Nation must make this investment.

### **Space Operations**

The U.S. must maintain assured access to space. Our national space capabilities allow us to globally navigate, communicate, and observe events in areas where non-space sensors are not feasible. Space capabilities are also a vital component of comprehensive deterrence and assurance and are critical to supporting our deployed forces and our national decision-making processes. Investment in these capabilities is vital to our national security. We greatly appreciate the continued support of Congress in helping to increase the resiliency and vitality of our space assets.

The space domain has increasingly become contested, degraded, and operationally limited. These are not new challenges. Some countries have clearly signaled their intent and ability to conduct hostile operations in space as an extension of the terrestrial battlefield. These

operations would deny U.S. forces the advantages of space, which have enabled us to favorably shape events in all corners of the globe.

In response to growing space threats, the DOD and Intelligence Community (IC) established the Joint Space Doctrine and Tactics Forum (JSDTF), which I co-chair with Ms. Betty Sapp, Director, National Reconnaissance Office. The JSDTF's goals are to ensure U.S. space policy, doctrine, operational concepts, strategies and planning scenarios reflect that space is a contested domain, populated by dynamic actors. We have already made significant improvements in the integration of exercises and wargames, and are revising associated joint doctrine, as well as new tactics, techniques and procedures for our space operators. The JSDTF will foster the transformation of how the U.S. operates in space by promoting seamless functionality between the DOD and IC – a tight bond we must continue to strengthen.

Another key initiative is the establishment of the Joint Interagency Combined Space Operations Center (JICSpOC) located at Schriever Air Force Base in Colorado. This center combines the efforts of USSTRATCOM, Air Force Space Command, and the intelligence community with a goal to create unity of effort and facilitate information sharing across the national security space enterprise. At its current phase, the JICSpOC is providing a robust location to conduct comprehensive operational experimentation. The JICSpOC will ensure the space enterprise meets and outpaces emerging and advanced space threats and will provide vital information for national leadership, allies, partners and the Joint Force. It will also serve to enhance the Nation's deterrent posture by demonstrating the United States is prepared when our space capabilities are threatened.

A component to all of these efforts is Space Situational Awareness (SSA)—the information that allows us to understand what is on orbit, where it is, where it is going, and how

it is being used. Consistent with long-standing obligations and principles of the Outer Space Treaty and other international legal standards, our goal is to ensure space remains a safe domain for all legitimate users. Sharing SSA information and collaborating with other nations and commercial firms promotes safe and responsible space operations, reduces the potential for debris-producing collisions and other harmful interference, builds international confidence in U.S. space systems, fosters U.S. space leadership, and improves our own SSA through knowledge of owner/operator satellite positional data.

USSTRATCOM has negotiated SSA Sharing Agreements and Arrangements with 51 commercial entities, two intergovernmental organizations (EUMETSAT and European Space Agency), and ten nations (Spain, France, Italy, Japan, Australia, Canada, South Korea, United Kingdom, Germany, and Israel) and is in the process of negotiating additional agreements. Through these sharing agreements, USSTRATCOM assists partners with activities such as launch support; maneuver planning; support for satellite anomaly resolution, electromagnetic interference reporting and investigation; support for de-commissioning activities; and space object conjunction assessments.

The Geosynchronous Space Situational Awareness Program (GSSAP) achieved initial operational capability in October of 2015, and USSTRATCOM is now operating GSSAP satellites to enable our cutting-edge SSA capabilities. GSSAP facilitates space-monitoring activities that contribute to global safety of spaceflight, as well as the peaceful access to space.

At the nucleus of USSTRATCOM's approach to space security is mission assurance—ensuring Combatant Commanders have required access to space-based capabilities. USSTRATCOM's Joint Functional Component Command for Space (JFCC-SPACE), located at Vandenberg Air Force Base in California, leads the effort, and through the Joint Space

Operations Center (JSpOC), executes continuous and integrated military space operations and routinely tracks thousands of space objects in orbit around the Earth. This includes more than 1,300 active satellites operated by approximately 60 nations and a wide variety of government, commercial, and academic organizations. The JSpOC also maintains the catalog of all artificial Earth-orbiting objects, charts preset positions for orbital flight safety, and predicts objects reentering the Earth's atmosphere.

We must sustain judicious and stable investments to preserve the advantages we hold in this complex environment. Examples include the Space Fence program which will greatly expand the capacity of the Space Surveillance Network; investments in modeling and simulation that will increase our understanding of the space environment and adversary capabilities; and funding for satellite communications that are resistant to interference. We must also continue to seek innovative and solutions with Allies and our commercial partners to ensure access to space operations remains available. These include active and passive protection measures for individual systems and constellations, and a critical examination of the architectural path we must follow to ensure resilience and affordability in our space capabilities.

### **Cyberspace Operations**

This year will mark the sixth anniversary of United States Cyber Command (USCYBERCOM). USCYBERCOM imparts an operational outlook and attitude to the management of the DOD's approximately seven million networked devices and 15,000 network enclaves.

Our primary focus for cyberspace operations within DOD is building the capability and capacity to protect DOD networks, systems, and information; defend the nation against cyberattacks; and support operational and contingency plans. The Cyber Mission Force (CMF) construct addresses the significant challenges of recruiting, training and retaining people, in

addition to acquiring the facilities and equipment necessary for successful cyberspace operations. We are creating 133 cyber mission teams manned by more than 6,000 highly trained people by the end of FY18. To date, 84 of those teams are fielded and assigned to a variety of missions, including our ongoing efforts to degrade, dismantle, and ultimately destroy ISIL. These teams support combatant commands and national missions. Budget stability is crucial to achieving this vision.

On 30 September 2015, the Secretary of Defense and the Chairman of the Joint Chiefs of Staff signed the DOD Cybersecurity Culture and Compliance Initiative (DC3I), tasking USSTRATCOM and USCYBERCOM to lead implementation. DC3I fosters long-term improvement through training, inspections, reporting and accountability. Improving our cybersecurity culture requires a holistic approach that addresses people, processes, and technology. Such efforts will continue to be critical to defending our DOD networks.

### **Global Strike**

USSTRATCOM's Joint Functional Component Command for Global Strike (JFCC-GS) operates from Offutt AFB, Nebraska. JFCC-GS provides a unique ability to command and control our global strike capabilities and build plans that rapidly integrate into theater operations. This includes integration of combat capability associated with kinetic and non-kinetic effects.

Conventional Prompt Global Strike (CPGS) capability offers the opportunity to rapidly engage high-value targets without resorting to nuclear options. CPGS can provide precision and responsiveness in Anti-Access/Area Denial environments while simultaneously minimizing unintended military, political, environmental or economic consequences. I support continuing research and development of CPGS capabilities.

## **Missile Defense**

Ballistic missile proliferation and lethality continues to increase as countries acquire greater numbers of ballistic missiles, increase their ranges, and incorporate countermeasures. North Korea possesses the Taepo Dong 2 space launch vehicle/ICBM, and has displayed the KN08 road-mobile ICBM that is likely capable of reaching much of the continental United States. North Korea also possesses hundreds of Short- and Medium-Range Ballistic Missiles capable of threatening South Korea, Japan, and forward-deployed U.S. forces in Eastern Asia and the Western Pacific. Iran's ballistic missile capability also presents a significant challenge to U.S. interests in the Middle East. Iran's overall defense strategy relies on a substantial inventory of ballistic missiles capable of striking targets throughout Southwest Asia and parts of Europe.

Accordingly, effective missile defense is an essential element of the U.S. commitment to strengthen strategic and regional deterrence against states of concern. The Ground-Based Midcourse Defense (GMD) system protects the U.S. homeland against a limited ICBM attack from North Korea and potential future threats from Iran. However, continued investment in three broad categories is required to lower costs and improve our capabilities against growing threats: 1.) persistent and survivable sensors, 2.) increased inventories of Ground-Based Interceptors (GBI) with improved performance and reliability and 3.) increased regional capability and capacity. These needs can be addressed by the continued funding of priority programs such as: Long-Range Discrimination Radar (LRDR), Redesigned Kill Vehicle (RKV), Aegis Ballistic Missile Defense, Terminal High-Altitude Area Defense follow-on, Overhead Persistent Infra-Red sensors, Upgraded Early Warning Radar, and Joint Tactical Ground Stations. Collectively, these improvements increase interceptor effectiveness and lower costs to defeat threats.

We have made significant progress in reaching our missile defense goals. To enhance Ballistic Missile Defense System (BMDS) sensors and discrimination, we are using available

technology to improve sensors, battle management, fire control and kill vehicles, while fielding LRDR to improve tracking and discrimination for homeland defense against Pacific theater threats. We are also increasing the number of GBIs from 30 to 44 by the end of 2017. Upgrades continue to improve GBI fleet reliability, and the development of the RKV began last year with deployment expected in approximately 2020. The RKVs will be more reliable, cost-effective, and easier to produce.

The European Phased Adaptive Approach (EPAA) contributes to the defense of our deployed forces in Europe and our European NATO Allies. EPAA Phase 1 was achieved in December 2011. Phase 2 is going through testing and integration and we expect it to achieve operational capability in Spring 2016. Phase 3 remains on schedule to be operational in the 2018 timeframe and will provide defensive coverage against medium- and intermediate-range threats with the deployment of a second Aegis Ashore site in Poland and an upgraded SM-3 Block IIA interceptor. The EPAA continues to be interoperable with NATO's Ballistic Missile Defence system.

While significant investments in intercept technology have increased our missile defense capability, much work remains. Increases in the quantity and quality of threats increase the risk that adversary missiles will penetrate our defenses and reach their intended targets. We are working with the Joint Integrated Air and Missile Defense Organization, the Missile Defense Agency and industry partners to explore improvements to the current BMDS. We must also examine the potential to prevent attacks by countering threats prior to launch. Efforts to defeat missile threats across the launch spectrum rely on awareness and warning and must be based on actions that are synchronized within a fully integrated missile defense architecture to maximize our limited defensive capacity.

## **Countering Weapons of Mass Destruction (CWMD)**

The U.S National Security Strategy states “there is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists.” The DOD Strategy for CWMD also affirms that the pursuit of WMD and potential use by actors of concern pose a threat to U.S. national security and stability around the world. As DOD’s global synchronizer for CWMD planning efforts, USSTRATCOM supports this strategy by leveraging the expertise resident in our Center for Combating Weapons of Mass Destruction (SCC-WMD), the Standing Joint Force Headquarters for Elimination (SJFHQ-E), and our partners at the Defense Threat Reduction Agency (DTRA)—all located at Ft. Belvoir, Virginia. Together our organizations conduct real-world and exercise CWMD activities with the other combatant commands to identify, prioritize, and mitigate WMD risks posed by the proliferation of WMD technology and expertise to nation-states and non-state actors.

To execute the DOD Strategy for CWMD, we have identified a need for comprehensive situational awareness that incorporates collaborative tools, continuously assesses the WMD threat, and provides a holistic awareness of the WMD environment. This capability would provide an enhanced awareness of emergent catastrophic-scale WMD threats that require collaboration across the interagency and partner nations. There is also an urgent need to update agent defeat weapon systems and develop modeling and simulation to assess collateral damage during WMD weapon attacks. USSTRATCOM is working closely with DTRA to resolve modeling and simulation shortfalls and ensure that cutting-edge technology is applied to WMD consequence.

The National Strategic Research Institute (NSRI) at the University of Nebraska, a University Affiliated Research Center in partnership with USSTRATCOM and the DOD, is



providing our nation with cutting-edge mission-essential research and development capabilities in Combating Weapons of Mass Destruction (CWMD). The NSRI experienced another successful year conducting scientific research to help ensure preparedness for WMD threats.

### **Joint Electronic Warfare / Joint Electromagnetic Spectrum Operations**

The electromagnetic spectrum (EMS) reaches across geopolitical boundaries and domains, and is tightly integrated into the conduct of commerce, governance and national security. Commercial demand for spectrum access results in increased pressure on bandwidth traditionally used for military operations. Additionally, our potential adversaries are actively pursuing capabilities to contest our use of the EMS.

Joint Electromagnetic Spectrum Operations (JEMSO) strengthens U.S. national objectives and enables the combat capability of the Joint Force by ensuring access to the EMS while denying adversaries the same. USSTRATCOM is developing JEMSO policy and doctrine, addressing capability gaps across the DOD, and working closely with the Combatant Commands, Services and other U.S. Government agencies through advocacy, planning and training.

### **Intelligence, Surveillance, & Reconnaissance (ISR)**

The demand for ISR has outpaced our ability to meet all needs. At the same time, we are focused on increasing the effectiveness and persistence of ISR capabilities while reducing business costs. Located at Joint Base Anacostia-Bolling, Washington, D.C., USSTRATCOM's Joint Functional Component Command for ISR (JFCC-ISR) is working with the Joint Staff, Services, Combatant Commands and the Intelligence Community to improve the management of DOD's existing ISR capabilities. I fully support maximizing the agile use of the capabilities we have, while also enhancing allied and partner contribution and cooperation. These efforts are designed to increase the persistence of our ISR capabilities, reduce the risk of strategic surprise, and increase our ability to respond to crises.

## **Targeting and Analysis**

Targeting requires dedicated analysis. USSTRATCOM's Joint Warfare and Analysis Center (JWAC) in Dahlgren, VA enhances our Strategic Deterrence and Global Strike missions by providing unique comprehensive analysis. JWAC's ability to solve complex challenges for warfighters—using a combination of social and physical science techniques and engineering expertise—is invaluable to protecting the Nation and helping the Joint Force accomplish its missions.

## **OUR PEOPLE**

People remain our most precious resource and deserve our unequivocal commitment to their well-being. Just as we sustain and modernize our platforms and weapons, we must sustain and modernize our workforce. Maintaining a talent pool of nuclear scientists and engineers is also paramount to providing viability to meet our stockpile requirements. Likewise, investing in the future of the professionals who operate, maintain, secure, and support our nuclear enterprise is critical. Tomorrow's leaders must have the ability to stretch their intellect well beyond one-dimensional problems. They must be able to operate in a multi-dimensional environment with multiple activities taking place simultaneously.

My visits throughout the past year confirmed my belief that we have an outstanding team in all of our mission areas. I am honored to lead such a focused, innovative and professional group dedicated to delivering critical warfighting capabilities to the Nation. Whether they are underwater on an SSBN, underground in a Launch Control Center, in the air on a bomber, or supporting missions from cyberspace to outer space, these great Americans do all they can for our Nation.

## **CONCLUSION**

Achieving strategic deterrence, assurance and escalation control will require a multi-faceted, long-term approach to investing in strategic capabilities and a renewed commitment to sustaining intellectual capital. The sustainment and recapitalization of our Nation's strategic capabilities is sorely needed and must not be delayed.

In today's uncertain times, your support, combined with the hard work of the exceptional men and women of United States Strategic Command, will ensure that we remain ready, agile and effective in deterring strategic attack, assuring our Allies and partners, and addressing current and future threats.