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SUBCOMMITTEE ON STRATEGIC FORCES
SENATE ARMED SERVICES COMMITTEE
UNITED STATES SENATE

DEPARTMENT OF THE AIR FORCE
PRESENTATION TO THE SENATE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON STRATEGIC FORCES
UNITED STATES SENATE

SUBJECT: FY20 Posture for Department of Defense Nuclear Forces

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Air Force Global Strike Command

May 1, 2019

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Introduction

For the last three years in Europe as the Commander, Third Air Force and the Deputy Commander, United States European Command, I had a front row seat in the great power competition unfolding in Europe, the Mediterranean, North Africa, and the Middle East. It is abundantly clear we must bring about a significant transition in our capabilities and our thinking as we turn our attention from seventeen years of conflict in the Middle East and counterterrorism operations to potential conflict with global competitors with more capable technology and growing strategic capabilities. Air Force Global Strike Command (AFGSC) has a central role in delivering what the nation needs most: a safe, secure, reliable, effective, and affordable long-range precision strike force – nuclear and conventional. This is a dialogue of blending what must and must not change. Safety, security, reliability and the American Public's trust in the nuclear force is nonnegotiable and must remain the bedrock of how we operate. What must change is the manner in which we train, prepare, sustain, and modernize. The Air Force nuclear arsenal can no longer be a collection of expensive programs; it must be grounded in relevant operational concepts of operations, affordable acquisition programs, improved and affordable sustainment, and robust training underwritten by effective nuclear command and control.

Transitions are the most difficult undertakings, but we have a unique opportunity to partner with Congress, the combatant commanders, and the Office of the Secretary of Defense to press forward with affordable, cost effective, and innovative solutions to ensure our Intercontinental Ballistic Missile (ICBM) and bomber forces are ready for the challenges of the 21st century.

Thank you for the on-time 2019 funding; predictable, reliable, and flexible budgets, coupled with the right authorities to drive competition are elemental to our future success.

Context

I am personally committed to the Secretary of the Air Force and Chief of Staff of the Air Force and their three lines of effort: the Air Force We Need, building a more lethal force,

and fielding tomorrow's Air Force faster and smarter. AFGSC is the warfighting command responsible for simultaneously executing two legs of the nuclear triad, overseeing the nation's Nuclear Command, Control, and Communications (NC3) capabilities and accomplishing long-range precision strike missions across the globe. Previous commanders testified from the perspective of a traditional Organize, Train, and Equip (OT&E) major command. Today, the AFGSC Commander is the Air Component Commander to United States Strategic Command (USSTRATCOM) which is a very different role. This provides a different perspective into how AFGSC forces are employed to fight. From this seat, it is possible to make decisions based on war-time operational impact rather than simply providing the forces. As modernization and sustainment programs progress, there will be ongoing analysis that leads us to risk-informed and balanced decisions throughout all phases of the acquisition process. An iterative, informed, and agile process is a key enabler for ensuring our deterrent and warfighting capabilities – legacy as well as follow-on – are firmly focused on meeting the anticipated challenges of the decades ahead. The pace of developing emerging technologies has changed drastically. Chasing the most exquisite technical solutions is too expensive and takes too much time. The pursuit should be the right strategies, "good enough" technology on-time, stable requirements, and owning the tech-baseline to support future development.

There have already been success stories as a result of these practices. For example, the Air Force selected the UH-1N replacement helicopter for $1.7 billion less than the service cost estimate. The decision to compete this contract was absolutely the right call and the competition it drove between the bidders resulted in lower prices for the Air Force. In terms of operations and sustainment, the Air Force will own the data rights and maintenance, which makes this option much more affordable in the long-term. We are particularly pleased with the unprecedented results digital based modeling and engineering has yielded in one of our most critical programs, Ground Based Strategic Deterrent (GBSD). This process is reducing risk at a faster rate and the certainty gained in the risk reduction will have a positive impact on the bottom line further down the road.

Affordability is imperative to maintain relevancy and the command is committed to seeking innovative ways to bring the cost of modernization down. There is potential for billions

of dollars in savings in modernization and sustainment programs, but the Air Force must be deliberate when developing the requirements and making subsequent investment decisions. Building this trust with the nation's leaders is critical to fostering productive teamwork. Make no mistake, the nation's nuclear weapon systems and legacy bombers are old and are no longer aging gracefully. The burden of cost to sustain and maintain our legacy systems will continue to increase, and there is no long-term affordable solution that does not include replacing those systems and components affected by age-out and technological obsolescence. The command's promise is to deliver those replacements as efficiently and affordably as possible.

Air Force Global Strike Command Priorities

Componency to USSTRATCOM

In 2018, my predecessor updated this committee on the reorganization effort aligning AFGSC as the single, full-time air component to USSTRATCOM and streamlined the lines of authority for our bomber and ICBM forces. The commander of AFGSC is now the commander of Air Forces Strategic – Air (AFSTRAT-Air) and the Joint Forces Air Component Commander (JFACC) as designated by the Commander of USSTRATCOM (CDRUSSTRATCOM).

Under the previous construct, responsibilities for the air, space, and naval strategic missions were spread across several lines of authority. Now, the Joint-Global Strike Operations Center (J-GSOC) handles the day-to-day responsibilities of the strategic nuclear mission for USSTRATCOM's air component. The J-GSOC consists of the Joint Air Operations Center (JAOC) and Joint Nuclear Operations Center (JNOC). The JAOC handles the conventional portion of the command's mission while the JNOC focuses on the nuclear portion. The National Airborne Operations Center (NAOC) is also aligned under the J-GSOC. When combined with AFGSC's existing responsibility for the E-4B aircraft, AFSTRAT, through USSTRATCOM, is better postured to present the NAOC mission to support the President and Secretary of Defense. The Standoff Munitions Application Center (SMAC) provides expertise in planning and targeting of Air Force standoff weapons. The Cruise Missile Support Activity Atlantic (CMSALANT) and Pacific (CMSAPAC), aligned under the Navy's Fleet Forces day-to-day,

support the J-GSOC during complex, joint targeting operations required by any combatant commander.

As CDRUSSTRATCOM's designated JFACC in addition to the Commander, AFSTRAT-Air, this dual-hatted position provides the ability to monitor, control, and direct all the air assets assigned or attached to USSTRATCOM anywhere in the world. These include the Air Force bomber, tanker, intelligence, surveillance, and reconnaissance, and ICBM forces as well as the USSTRATCOM Airborne Command Post (ABNCP) and Take Charge and Move Out (TACAMO) missions. The JFACC also supplies a common operating picture to CDRUSSTRATCOM that provides status and locations of all air assets. The success of this restructuring has been proven during global exercises for two years now, and this is a much better operations-focused construct than the previous organization.

This is relevant because the authorities granted to these positions enable an assessment of how best to accomplish the warfighting and OT&E missions through risk-informed and balanced decision making. As the warfighter, executing as the Air Component Commander, it has revealed things that have been invalid for a long time and provided the opportunity to put operating concepts in place that enhance lethality and improve relevancy. How we prioritize sustainment and modernization, Forward Locate Aircraft Generate (FLAG) operations, and requirements validation on command and control parameters are all examples of how this position is able to optimize and prioritize. There is an opportunity to make deliberate, risk-informed decisions to bring costs down based on operational impact.

Security

Security is one of the most fundamental competencies the nation demands of the military. The right questions about security need to be asked and innovative teams should determine how best to secure our installations and assets. This is more than Security Forces Defenders at the gate; this is preparing for threats from unmanned aerial systems, cyber, and other potential threats across multiple domains. The United States no longer enjoys the sanctuary it used to and the warfighting domains continue to expand, challenging the nation's collective understanding and application of warfare, ideas of national defense, and theories of victory. In 2017, the

Secretary of the Air Force directed AFGSC to lead a Security Forces Review Team to provide Headquarters Air Force actionable items to improve the health and lethality of our Defender corps. While these action items are refined and addressed, progress is being made to shape the future of Security Forces as an elite, integrated team prepared to face the threats they encounter in and around our installations and missile fields.

The Ground Combat Training Squadron on Camp Guernsey (Frontier Defender) was realigned under the 90th Missile Wing at F.E. Warren AFB, Wyoming, on 1 June 2018. The regional training center operates on a Wyoming Air National Guard camp, where joint cooperation enables the training of our elite Defenders charged with protecting our nation's nuclear arsenal. The 60-member staff provides the only training in the Air Force for Defenders assigned to nuclear security operations. Additionally, Frontier Defender continues to refine and execute the first-ever Security Forces weapons school, the 62-day Security Forces Weapons and Tactics Course. The objective of the course is to train Defenders skilled in resource analysis and the application of force protection concepts, through the lens of USAF Weapons School graduates, to ultimately provide proactive protection of our nuclear assets.

AFGSC is also collaborating with the United States Air Force Academy's Research Department. The intent is to pioneer integration of existing communications equipment employed by AFGSC's Defenders in the missile fields with commercial drone capabilities. The ability to see and sense potential threats using small, unmanned aerial vehicles and provide that information quickly and securely to ground forces will substantially increase our capability to defend the nation's nuclear assets and installations. Over the past year, AFGSC has made significant strides in an emerging security initiative to counter-unmanned aircraft systems (C-UAS) detected near important resources. Fielded capabilities include handheld and portable systems. Fixed-site and mobile vehicle-borne systems are currently being installed. These new capabilities will provide a necessary added layer of security to ensure continued weapons systems safety and operability. Additionally, the command has initiated blue-unmanned aircraft systems (B-UAS), a friendly forces pilot program, across all installations, and once training and testing are complete, B-UAS capabilities will enhance battlespace awareness to assist in meeting these emerging threats. These efforts with our partners will continue to ensure the robust

integration of both existing and developing technologies to provide cost effective and robust battle space awareness to AFGSC defense forces. This is the beginning of an evolving journey. C-UAS is a rapidly developing technology and as a service, there will be an evolution to utilize the capability and defend against the threat. These are a few examples of how AFGSC is taking Security Forces training and operations in a more relevant, realistic direction.

Weapons Generation Facilities

Today's Weapon Storage Areas (WSA) are not simply storage facilities; they support rapid generation of nuclear aircraft and routine maintenance operations for the ground-based and air legs of the nuclear triad. Two ICBM wings are planned to receive modernized facilities for these missions, renamed Weapons Generation Facilities (WGFs). Additionally, bomber WGFs will be needed to accommodate mission growth and improve current capacity, and with the right number, will provide national leadership more strategic decision space. Affordability is the entering argument for the Air Force's way forward concerning WGFs. This year, AFGSC organized a cross-functional team to re-examine the design plans to identify more affordable options. The team identified options that allow for recapitalization of existing facilities where possible. For locations that do not have existing facilities capable of undergoing recapitalization, the design characteristics have been scaled back for more affordable construction. A more detailed update will be available after a final decision is made on the plan for bomber WGFs.

Infrastructure

One of the chronic challenges is the impact that degraded and unpredictable infrastructure funding is having on mission, Airmen, and families. Bases are power projection platforms and must be viewed as part of a "3-D weapon system." They are essential elements, and this is particularly true for the three ICBM bases and the five bomber bases, as they stand as deterrent 24/7/365, ready to conduct global strike missions directly from these locations. For years, the Air Force has been forced to make deliberate decisions to take risk in infrastructure funding, in order to apply scarce dollars toward higher readiness and modernization priorities. The cumulative effect has been a steady erosion of facilities and core infrastructure, and significant growth in costs

to address exponentially-growing repair and replacement backlogs. There is a growing risk in facilities and infrastructure reliability, higher overall costs due to accelerated deterioration, and increasing potential for unexpected catastrophic, mission-impacting failure. Innovative Airmen have, and will continue to, focus limited resources on "mission critical, worst first" facilities and infrastructure while accepting risk in the recapitalization of facilities with less-direct mission impact such as community and base support. There is without question a correlation between facility condition and quality of life, as well as quality of work. Without consistent, reliable, and flexible funding, degrading infrastructure will continue to increase risk of mission interruption or degradation and affect quality of life of Airmen and families. Providing a predictable, stable budget with enough resources to address degrading infrastructure will not only enhance lethality, but will go far in providing Airmen the working and living environments they deserve and increasing overall readiness.

Nuclear Command, Control, and Communications (NC3)

As the NC3 lead for the Air Force, AFGSC supports CDRUSSTRATCOM priorities of sustaining current NC3 systems and replacing the legacy systems with next generation NC3 technology to ensure secure, reliable nuclear command and control capabilities to the President and warfighters.

Sustaining current NC3 systems includes developing maintenance performance indicators to track the reliability of communications systems and predicting future maintenance actions and spare parts needs. Unfortunately, there are components that suffer from diminishing manufacturing sources and material shortages across the NC3 enterprise. For example, the decades-old Miniature Receive Terminal (MRT) on the B-52, a system that receives Emergency Action Messages (EAMs) over very low frequency, fell into that category. As a result of this analysis and planning, a vendor was identified that could manufacture the band-pass filters required to repair the MRT receivers. Today, there are enough band-pass filters in stock to sustain the aging system until replacement.

Continuing its sixth decade as the backbone of the nation's bomber fleet, the B-52 is funded

in the FY20 PB for installation of a Very Low Frequency (VLF) receiver which leverages the technology currently being installed on the B-2 fleet. This VLF terminal will provide a NC3 receive-only capability. To further modernize VLF capability across multiple platforms, we are moving forward with development of a Common VLF Receiver (CVR) capable of utilizing emerging waveforms for improved EAM reception. We envision employing this receiver on airborne and ground weapons systems. Additionally, the Air Force continues to develop the Family of Advanced Line-of-Sight Terminals (FAB-T) Force Element Terminal (FET) which will be integrated onto the B-52 providing access to the Advanced Extremely High Frequency (AEHF) satellite network. AEHF will also be integrated into the ICBM's Launch Control Centers (LCC), further enhancing the redundancy that exists for NC3 in the ICBM force. We are also assessing options to leverage other programs' investments in this communication technology to enable more rapid fielding across bombers and supporting reconnaissance and tanker aircraft.

Other command and control modernization programs include the Global Aircrew Strategic Network Terminal (GASNT) Increment 1 program, which will bring nuclear tasked command posts, mobile support teams, and munitions squadrons the capability to operate on the AEHF satellite network at extended data rates. The GASNT Increment 1 program is currently undergoing operational testing and is expected to reach a Milestone C production decision in the summer of 2019. The GASNT Increment 2 program will provide advanced aircrew alerting, Ultra High Frequency (UHF) Line of Sight (LOS) and advanced High Frequency (HF) capabilities. Additionally, the Service continues efforts to upgrade the Strategic Automated Command Control System (SACCS) to improve reliability of this primary EAM distribution system.

Fully funded in the FY20 PB, communications upgrades to the E-4B NAOC will ensure a reliable, airborne NC3 platform for senior leaders. The Low Frequency Transmit System (LFTS) replaces the existing dual trailing wire antenna while reducing aircraft weight by almost a ton. The Survivable Super High Frequency (SHF) system provides reliable and sustainable voice/data capability in scintillated and jammed operational environments. Tactical UHF radios will be upgraded to Mobile User Objective System (MUOS) capability to meet CJCS requirements. Finally, the FAB-T Command Post Terminal (CPT) is being installed on the E-4B fleet and will enable Presidential National Voice Conferencing (PNVC) to replace legacy MILSTAR capability

and provide connectivity to the AEHF satellite network.

As the E-4B is modernized, the nation must look ahead to replacing the aging aircraft within the National Military Command System. The joint-Service NAOC, Executive Airlift (EA), ABNCP, and TACAMO (NEAT) Analysis of Alternatives (AoA) is underway and is scheduled to report to OSD in September 2019. The AoA will evaluate whether mission realignments can improve the operational value of the airborne layer and examine potential synergies in acquiring a common platform.

The next generation of NC3 that will be in place thirty years from now is currently in development. Simply replacing the old with the new is not the right strategy; as sustainment and modernization efforts progress, retaining the modularity and data rights to incorporate new technology and ensure compatibility with new weapon systems is a necessity. AFGSC stands ready to support USSTRATCOM and the initiatives to deliver NC3 capability on operational and threat-relevant timelines.

Sustainment

Twentieth Air Force

Twentieth Air Force (20 AF), one of two Numbered Air Forces in AFGSC, is responsible for the Minuteman III (MMIII) ICBM, UH-1N helicopter forces, the Kirtland Underground Munitions Maintenance and Storage Complex at Kirtland Air Force Base, New Mexico, the Flight Test Squadron at Vandenberg Air Force Base, California, and the ground combat training squadron at Camp Guernsey, Wyoming. The 450 dispersed and hardened Launch Facilities (LFs), are controlled, maintained, defended, and supported by AFGSC Airmen every single day, providing the bulk of our day-to-day nuclear alert force, and doing so with precision and professionalism. The ICBM forces presented to USSTRATCOM are deployed in place, and preserve strategic stability by providing the nation a credible and responsive nuclear option in a contested environment and presenting adversaries a nearly insurmountable obstacle of numbers should they consider a disarming attack on the United States. AFGSC's ICBM forces are New

START compliant.

Minuteman III

AFGSC is committed to the sustainment of MMIII ICBM and its NC3 systems and support equipment. It is critical the weapon system remains viable until it is replaced by the GBSD. To sustain the existing fleet of large missile maintenance vehicles, the $136.2M Transporter Erector Program (TERP) and the $321.8M Payload Transporter Replacement (PTR) remain a priority. PTR production is expected to begin production in FY19.

The ICBM LCCs will be equipped with modernized communications systems to improve reliability and replace aging and technologically obsolete systems. The LCC block upgrade, expected to begin full deployment in 2020, is a $94M modification effort that replaces multiple LCC components to include modern data storage, a weapon system console printer and oxygen regeneration unit. A significant security upgrade to the remote visual assessment capability at our LF will increase situational awareness and security. This $69.5M program is expected to begin deployment in FY20.

In FY18, AFGSC conducted three MMIII flight tests and two simulated electronic launch tests. In FY19, we are scheduled to conduct four operational MMIII flight tests and two simulated electronic launch tests that will demonstrate the operational credibility of the ground-based component of the nuclear triad and the Air Force's commitment to sustaining that capability.

In an effort to improve the nuclear capability of our ICBM force, the ICBM Programmed Depot Maintenance program began in FY16. The program places operational LFs and LCCs on an 8-year depot-level maintenance cycle. It greatly increases the effectiveness and lethality of our ICBMs by ensuring their sustainment is done in an engineering-based, systematic way. Successful prototyping of the program was accomplished in FY16 and from FY16 to FY18, 100 LFs and 15 LCCs went through the first maintenance cycle. There are 55 LFs and 6 LCCs planned in FY19. This program is key to ensure MMIII

viability through the transition to GBSD.

UH-1N

AFGSC is the lead command for the Air Force's Vietnam-era fleet of 63 UH-1N helicopters. The majority of these aircraft support several critical missions: security of our ICBM fields, transport missions in the National Capitol Region and USINDOPACOM, and critical Continuity of Operations missions. Additionally, UH-1Ns support Air Force survival training with rescue operations. Further, they participate in the Defense Support of Civil Authorities program and are frequently called upon to conduct search and rescue activities for missing or injured civilians.

AFGSC has developed a comprehensive sustainment plan for the UH-1N while transitioning to the replacement aircraft. The UH-1N will continue to operate in AFGSC through the mid-FY20s and within the USAF until the mid-FY30s. AFGSC is responsible for the life-cycle of all UH-1Ns in the USAF and some modernization will be necessary for the aircraft to remain effective; currently, all future modifications will be completed in the early FY20s. These modifications are only occurring on UH-1Ns flying the longest to ensure mission effectiveness while remaining fiscally responsible. The sustainment of the UH-1N will ensure effectiveness until platform retirement.

Eighth Air Force

Eighth Air Force (8 AF) is responsible for the B-52H Stratofortress (B-52) bomber, the B-2A Spirit (B-2) bomber, the B-1B Lancer (B-1) bomber, and the E-4B NAOC, the cornerstone of survivability of the National Military Command System, providing critical continuity and communication capability for our national leaders. Bombers provide decision makers the ability to demonstrate resolve through generation, dispersal, and deployment. AFGSC's bombers are New START compliant.

The overall size of the bomber force is driven by the significant contribution to conventional campaigns, now more of a concern in this era of great power competition. Since

1991, the Air Force has conducted continuous combat operations with 46% fewer aircraft than we had in 1991. During this period, the demand for bombers increased resulting in a growing toll on Airmen and readiness of the aircraft and equipment. AFGSC bombers have supported operations through continuous rotations in United States Central Command (USCENTCOM), United States Indo-Pacific Command (USINDOPACOM), United States Africa Command (USAFRICOM), United States European Command (USEUCOM), and United States Southern Command (USSOUTHCOM) areas of responsibility (AORs). Additionally, AFGSC provides bomber forces to support USSOUTHCOM's Joint-Interagency Task Force-South, USEUCOM, and USAFRICOM through the Joint Staff's Global Force Management process and Bomber Task Force ordered deployments and missions. These opportunities enhance our support to our allies and display our resolve to potential adversaries. The core of AFGSC assurance and deterrence is our unwavering commitment to USSTRATCOM and our nuclear mission. AFGSC must balance global force posturing with our nuclear mission, while not jeopardizing readiness and fleet health. Unfortunately, the effects of this extremely high operational tempo are reverberating through the bomber fleet and specific examples are outlined below.

B-1 Update

The B-1 is a highly versatile, conventional-only, multi-mission weapon system that carries the largest payload of both guided and unguided weapons, of all the bombers in the U.S. inventory. Since 1991 it has provided rapid support for combatant commanders around the globe. Multiple wartime employments, high operations tempo, and harsh environment exposure have proven the aircraft's combat effectiveness, but have significantly degraded aircraft availability.

The B-1 was built as a low-level penetrator and is engineered for flight profiles different than the more stressing close air support/strike profiles flown in support of USCENTCOM. Seventeen years of steady deployments in these more stressing flight profiles has resulted in the need for increased structural inspections and repairs. To that end, a dedicated, programmed depot-level repair line is planned to stand up at Oklahoma City Air Logistics Complex

beginning in FY20 in order to assure our high standard of aviation safety. Furthermore, using Delta Airlines as a benchmark, AFGSC's Condition Based Maintenance Plus (CBM+) initiative is now underway in the B-1 maintenance community. This predictive approach to identifying aircraft subsystem degradation will optimize scheduled down time for the B-1 in order to concurrently make deferred repairs and change near end-of-life components, avoiding unscheduled breaks and ultimately resulting in improved aircraft availability. When fully implemented, CBM+ will increase mission effectiveness, aircraft availability, optimize spare parts forecasting in the supply chain, and minimize unscheduled downtime for maintenance. In combination, the additional investment in the B-1 structure and implementation of CBM+ sustainment processes will ensure the Air Force achieves the service life goal for the B-1.

The B-1 will remain a viable platform through modernization programs and upgrades to carry it through to retirement. Avionics and weapon upgrades are critical; the Integrated Battle Station, funded to $56M in FY20-24, includes an upgraded Central Integrated Test System, Fully Integrated Data Link, Vertical Situation Display, and flight simulator upgrades. These are essential capabilities to provide aircrew with a more flexible, integrated cockpit. This fleet wide modification will reach full operational capability in FY20. Upgrades to Radio Cryptographic Equipment, Identification Friend or Foe, Link-16, and Bomb Rack Modifications along with the Fully Integrated Advanced Targeting Pod capability will ensure the B-1 remains completely assimilated with Joint Combat Forces.

The stand-off weapons currently employed by the B-1 include the Joint Air-to-Surface Standoff Missile (JASSM), the Joint Air-to-Surface Standoff Missile-Extended Range (JASSM-ER), and now, the B-1 is the only Air Force delivery platform for the Long-Range Anti-Ship Missile (LRASM). This precision strike capability has guaranteed a critical role for the B-1 in assuring our allies and deterring potential adversaries now and into the future.

B-2 Update

For nearly 25 years, B-2s have provided the nation with the only stealth bomber capable of penetrating air defenses anywhere in the world. The B-2 holds targets at risk with

a variety of nuclear and conventional weapons and has provided deterrence against our enemies and stability for our allies. The B-2's conventional accomplishments are numerous and incontrovertible; the bomber provided precision attacks during the Kosovo and Iraq Wars, strikes on the Taliban and Al Qaeda in Afghanistan, and on forces in Libya.

B-2 modernization efforts are addressing a nuclear command and control need by bringing a survivable very low frequency communication capability to the aircraft. Additionally, with the proliferation of anti-access/area denial threats, we must ensure the B-2's ability to penetrate enemy defenses with the Defensive Management System Modernization (DMS-M) program. The command stands behind DMS-M as a must-pay bill for continued lethality and the program is fully funded in FY20. Additionally, the B-2 is being upgraded to carry the JASSM-ER and the B61-12 nuclear gravity weapon. These upgrades are currently programmed for $145M in Research, Development, Test, and Evaluation and $46M in procurement. These are critical to ensuring the bomber leg of the nuclear triad remains a viable and relevant warfighting capability.

Small fleet dynamics continue to challenge our sustainment efforts primarily due to vanishing vendors and the diminishing supply chain. There is an ongoing effort to maintain the proper balance of fleet modernization and sustainment while maintaining combat readiness. Lessons learned from the difficulty of sustaining and modernizing the B-2's small fleet, and an ever- decreasing technological advantage, are critical drivers for B-21 requirements.

B-52 Update

The B-52 may be the most universally recognized symbol of American airpower. It is able to deliver the widest variety of nuclear and conventional weapons, and boasts the best aircraft availability and mission capable rates of all three bomber platforms.

The B-52 will remain a key element of our bomber force until the 2050s, and therefore, it is paramount that we continue to invest resources into this aircraft. The modernization and sustainment of the B-52 should not be based on how long it has been in service, but rather, based

on how long it will be in service. AFGSC is looking at B-52 modernization holistically, to optimize, prioritize, and deliver affordable, on-time modernization to sustain this aircraft. Modernization programs will be prioritized and integrated in an effort to make deliberate decisions on timing for concurrent programs. Integration of the existing programs with smart and efficient development and test schedules is critical to deliver affordable, lethal combat capability. Current modernization programs include the B-52 Radar Modernization Program, funded $1.03B in FY20-24, and entered execution in the pre-Milestone B phase. Furthermore, B-52 training simulators require integration of various programs such as Combat Network Communications Technology (CONECT), internal weapons bay upgrade, data link capabilities, air refueling, and information technology refresh. Supporting the revitalization of these critical training tools will create high fidelity training environments in-line with Air Force priorities, such as Pilot Training Next, and directly increase the readiness of B-52 crews in support of nuclear and conventional missions.

Additionally, the 1960-era TF-33 engines currently on the B-52 are frequently operating with parts salvaged from aircraft no longer in the inventory. What the aircraft maintainers accomplish on a daily basis to keep these jets flying is nothing short of miraculous. The supply of these parts, no longer made by industry, will be exhausted and leave the engines unsustainable by 2030. The Air Force is now funding efforts, $1.4B in FY20-24, to integrate and deploy replacement B-52 engines, saving fuel and extending the aircraft's range while improving reliability and sustainment.

Other initiatives include the Internal Weapons Bay Upgrade, which increases B-52 smart weapons capacity by 67% and adds JASSM and JASSM-ER capability. Also, there are currently 52 B-52s converted to the new CONECT configuration. This modification moves the B-52 into the digital age for the first time, providing an on-board local area network, allowing the aircrew to share a common battlespace picture. This modification is installed on every aircraft going through regular program depot maintenance cycle. The B-52 CONECT targeting upgrades and inclusion of Digital Aided Close Air Support brings a robust capability to long-range firepower available today to combatant commanders. Communications remain the cornerstone of our long-range strike capability. The ability to launch bombers and re-task

and retarget them while en route to the battlespace is a powerful force multiplier. Additionally, the addition of Link-16, a critical communications node, will enhance the operational picture integrating the aircraft with the warfighter.

Air-Launched Cruise Missile

The AGM-86B Air Launched Cruise Missile (ALCM) is an air-to-ground, winged, subsonic nuclear missile delivered by the B-52. Fielded in the 1980s, the ALCM is over 30 years old, well beyond its 10-year life expectancy, and is undergoing multiple Service Life Extension Programs (SLEP). While the ALCM remains effective today, it is rapidly becoming technologically obsolete. As our ALCMs are aging-out, our adversaries are developing new cruise missiles and fielding more capable defense systems. It is imperative that the ALCM is replaced due to its aging subsystems, the shrinking stockpile of operational missiles, and advances in enemy defense. The Air Force will invest $360M in FY20-24 to continue existing SLEPs and testing efforts that include critical telemetry, encryption, and flight termination components until the Long Range Stand-Off (LRSO) missile reaches operational capability in 2030.

B61

The B61 family of gravity nuclear weapons supports the airborne leg of the triad and is the primary weapon supporting our NATO allies under extended deterrence. The B61 is currently undergoing a LEP that results in a smaller stockpile, reduced special nuclear material in the inventory, modernized safety and security features, and reduced lifecycle costs by consolidating four weapon versions into one version, the B61-12. The B61-12 includes the addition of a digital weapons interface and a guided tail kit assembly. AFGSC is the lead command for the $157M in FY20-24 B61-12 Tail Kit Assembly program, a DoD-developed system providing reduced maintenance, reduced cost, and increased sustainability. The B61-12 Tail Kit Assembly program is in Production and Deployment Phase and is synchronized with National Nuclear Security Administration (NNSA) efforts. The Tail Kit Assembly design and production processes are on schedule and within budget to meet the planned FY20 first

production unit date, and support the lead time required for the inclusion of the Department of Energy (DoE) warhead service-life extension completion date of March 2020. This joint DoD and DoE endeavor allows for continued attainment of our strategic requirements and regional commitments.

Modernization

B-21 Raider

The B-21 Raider will fulfill two critical roles: provide a day-to-day conventional and nuclear bomber that will eventually replace the conventional B-1 and dual-capable B-2. This is highlighted because the cost of nuclear modernization often includes this program in the narrative. Technology gaps between the United States and potential adversaries are closing. The B-21 Raider will support the nuclear triad by providing an advanced and flexible deterrent capability and the ability to penetrate modern and future air defenses. Further, the B-21 will provide flexibility across a wide range of joint military operations using long-range capabilities, large and mixed payloads, and survivability. From the outset, the B-21 has been designed to have an open architecture, which enables it to more rapidly and affordably integrate new technology and respond to future threats. The program is a national security imperative that will extend American air dominance and lethality against next generation capabilities and advanced air defense environments.

The B-21 is fully funded for $3B in the FY20 budget submission, and initial capability is projected for the mid-2020s. Extensive campaign and mission level analysis will determine the minimum number of B-21s required to meet combatant commander needs in the face of closing technology gaps and increasing threat capabilities.

Current bomber bases are best suited for B-21 operations, maintenance, security, and training requirements. The Air Force is conducting the strategic basing process, which includes analysis to determine construction and facility renovations necessary to support the new mission. Additionally, base operating support and off-base community support are well-

established at current bomber bases. Throughout this process, the primary focus is to provide safe, secure, and lethal bomber operations in a cost-efficient manner.

Ground Based Strategic Deterrent

To ensure continued lethality and affordability of the most responsive leg of the triad, GBSD has successfully moved forward through the Technology Maturation and Risk Reduction (TMRR) contract awarded on 21 August 2017. Following this competitive and cost-reducing TMRR phase, the source selection process will identify a single provider with material development efforts anticipated to begin in the 2020 timeframe. As continued program analysis has revealed, GBSD represents the most-effective strategy to mitigate capability shortfalls while restoring warfighting effectiveness and replacing critically-aged infrastructure. GBSD is fully funded at $10.8B in FY20-24. A focus on developing a competitive edge is evident in the leveraging of Model Based System Engineering (MBSE) during TMRR where there is an estimated potential to save several billion dollars of acquisition and lifecycle costs. This is possible due to MBSE's ability to decrease design cycle timelines and ensure design modifications and their subsequent impacts are fully realized without the need for traditional prototypes or extensive paperwork reviews.

Furthermore, the modular design focus, a key acquisition tenet, is expected to reduce the need for specialized or comprehensive system overhauls throughout the 50-year operational lifecycle. The value proposition of this program is unprecedented – the Air Force will save money on maintenance, operations, and in personnel; physical access and modularity of the designs makes GBSD simpler and more affordable to sustain than any of its predecessors. The security requirements will change dramatically: there will be fewer convoys on the roads, fewer open launcher configurations, fewer defenders needed to guard the site during maintenance, and it brings new capability to the most responsive leg of the triad affordably.

Additionally, there is collaboration with NNSA and the W78 warhead replacement program, the W87-1. As of this calendar year, that program is in development. The

replacement warhead will use the MK21 aeroshell and will deploy on GBSD after FY30.

Long Range Stand-Off Missile

The LRSO will be a reliable, long-range, and survivable weapon system and is an essential element of the nuclear triad. It will be flexible and compatible with B-52 and B-21 platforms. The Air Force dedicated $2.4B in FY20-24 for the LRSO to replace the aging ALCM we have relied upon for 36 years. The ALCM will not be a viable option for employment beyond 2030. The vast majority of targets covered by the bomber leg of the triad require the employment of stand-off weapons. Without LRSO on B-21s and B-52s, our ability to hold adversaries at risk is reduced, the risk to our aircraft and aircrew is increased, and the execution of the wartime mission is degraded. Stand-off weapons reduce over-flight concerns and provide the most visible and responsive extended deterrent to our allies and partners, supporting the well-established United States counter-proliferation policy. Furthermore, the bombers that will deliver the LRSO are the nation's only recallable asset, giving U.S. leaders the maximum amount of flexibility at the most critical moments.

The LRSO missile will ensure the bomber force continues to hold high-value targets at risk in an evolving threat environment, including targets deep within an advanced integrated air defense system. Additionally, the current acquisition strategy ensures close synchronization with NNSA to fully integrate the W80-4 nuclear warhead with LRSO. This weapon will retain nuclear penetrating cruise missile capabilities through 2060. To meet operational, testing, and logistics requirements, the Air Force plans to acquire approximately 1,000 LRSO cruise missile bodies. This quantity will provide spares and supply sufficient non-nuclear missile bodies throughout ongoing flight and ground testing. The number of nuclear-armed LRSO cruise missiles (i.e., mated to a nuclear warhead) is planned to be equivalent to the current ALCM nuclear force.

UH-1N Replacement

In order to continue supporting critical national missions and fully comply with DoD

and USSTRATCOM requirements, the Air Force has committed $1.6B in FY20-24 toward replacing the UH-1N fleet, as the legacy platform falls short of missile field operational needs, notably speed, range, endurance, payload, and survivability. In September 2018, the Air Force selected Boeing's MH-139 as the replacement solution for the aging UH-1N fleet through a full and open competition, significantly advancing the capabilities over the legacy aircraft and saving the Air Force $1.7 billion based on the service cost estimate. The timely fielding of this platform will enable the Air Force to meet nuclear security requirements and fully support Presidential Continuity of Government missions in the national capital region. The first aircraft is already on the production line and is scheduled for delivery in November 2019. Initial Operating Capability at the first Global Strike base is anticipated in FY22.

Conclusion

I look forward to updating the committee on our progress and building trust through our common goal: to protect the United States with a safe, secure, reliable, effective, and affordable long-range precision strike force. We remain focused on climate and culture to get us there, particularly in the areas of excellence, teams, and people. The Air Force requires authentic leaders who excel at two things: connecting with Airmen and connecting Airmen to the Air Force family. Leaders at every level must cultivate a culture and climate of respect, encourage personal and professional growth, and advocate for Airmen to ask for help if they need it. Our work demands excellence, not perfection, and Airmen at every level are valued team members working together to accomplish the mission. Authentic leaders encourage innovation, bold ideas, and better ways of going about our business. Revitalizing our squadrons and allowing commanders the space to lead boldly, to develop inclusive, diverse, and well-rounded teams of integrators will produce measurable results and create a better climate for the Airmen who will take our place. It will take teamwork to win tomorrow's fight and we are stronger together. We are on a good path moving forward, but there is a lot of work to be done.

AFGSC is committed to affordable modernization and sustainment of our nuclear triad and conventional forces. During this period of transition, it is imperative that we continue to seek out innovative solutions to bring the cost of modernization down. Our Air Force remains

the most powerful in the world thanks to the help from Congress and the vision and courage of those who have gone before us, but we cannot be static in a world where the dynamics of power are shifting. I am encouraged by our progress and appreciate the opportunity to update this committee.