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THE SUBCOMMITTEE ON STRATEGIC
FORCES SENATE ARMED SERVICES
COMMITTEE UNITED STATES SENATE

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE SUBCOMMITTEE
ON STRATEGIC FORCES
SENATE ARMED SERVICES COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: Fiscal Year 2016 National Defense Authorization Budget Request for National Security Space Activities

STATEMENT OF: Honorable Deborah Lee James
DoD Executive Agent for Space
Secretary of the Air Force

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Introduction

Thank you Chairman McCain, Chairman Sessions, Ranking Member Donnelly, and distinguished Members of the Subcommittee, it is an honor to appear before you today. On behalf of the men and women of the Department of Defense, we are here today to articulate key efforts we are making to better secure, defend, and enable a domain that is vital to our way of life and integral to national security.

Space is Vitally Important

Space-based capabilities and effects are vital to U.S. warfighting, homeland security, and our way of life. For example, space provides us with position, navigation, and timing through our Global Positioning System; communications used in international banking and global commerce; and remote sensing to deter against nuclear war, forecast weather, and manage our critical natural resources. But more importantly, space is integral to every aspect of our nation's defense. Space isn't just an enabler for the other domains; it directly impacts the calculus of national security.

Space is Changing Rapidly

Space is no longer a sanctuary or a domain where we will continue to enjoy unfettered access. It's now a contested domain. While space presents promising opportunities to expand commerce, increase partnerships, and collaborate with industry, our space capabilities today are facing advanced, demonstrated, and evolving threats.

The growing importance of space, coupled with increasing full spectrum threats, means we have to approach space with a new mindset. We are addressing the space domain differently than we have in the past. The DoD is committed to preparing for challenges where conflict might extend into space. If war migrates to space, as it has migrated to every other domain on this

planet, we have to defend ourselves, just as we defend ourselves in every other domain.

Win Todays Fight and Prepare for Tomorrow's Fight

The Nation depends on the Department of Defense to deliver game-changing capabilities in the space domain and we must continue providing that as quickly, effectively, and efficiently as possible. As we develop systems and personnel for space operations, our efforts will be focused to ensure the domain is manageable, securable, and defensible within our Total Obligation Authority.

Looking to the future, our focus must change in order to confront the threat of a possible conflict extending to space. That means re-examining our development and acquisition processes to deliver capabilities more quickly and efficiently while fully meeting our Nation's warfighting requirements. We will transition our focus from global space operations to a more proactive, and if challenged, a defensive space posture.

Executive Agent for Space

The Department of Defense's Executive Agent for Space is responsible for promoting unity of effort across the DoD space enterprise, and is responsible for coordinating, collaborating, and integrating key space issues with DoD stakeholders. The EA for Space chairs the Defense Space Council (DSC) which provides recommendations to the Deputy Secretary and to the Secretary of Defense on our future space posture.

In particular this last summer, the DSC was actively engaged in the DoD Strategic Portfolio Review to develop an emerging strategy to address threats in the space domain and ensure we are postured if war extends to space—many of our current and future investments reflect this strategy. Furthermore, the DSC vetted many of the key initiatives last year ranging from assured access to space to bolstering our space mission assurance posture.

Assured Access to Space

Since the Sputnik launch in 1957, getting to space has been important. However, with the nation's reliance on space capabilities, assured access to space has become one of our highest priorities. It is essential we sustain a reliable capability to deliver national security satellites to space. The Evolved Expendable Launch Vehicle (EELV) team continues an unprecedented string of successful national security space (NSS) launches. In 2014, the Atlas V and Delta IV launch vehicles executed 13 launches, nine of which supported NSS missions, and with the successful launch of GPS IIF-9 on March 25 2015, extended the record of EELV total launch successes to 79. These launch vehicles carry some of our most precious spacecraft into orbit including global navigation and timing, missile warning, communications, weather, and intelligence spacecraft.

Launch Competition and engine replacement

Within the context of assured access to space, our launch priorities are to reintroduce competition into the EELV program as soon as possible emphasizing mission assurance. At the same time, we must eliminate the use of the Russian RD-180 rocket engine. We have developed a plan to transition off the RD-180, which, we believe, will not sacrifice assured access to space and mission assurance while we maintain our objective to reintroduce competition.

The Air Force's plan is a four step approach to transitioning to domestic propulsion while assuring US access to Space. Step 1, started last year, is to mature the technology to reduce the technical risks going forward. We have obligated about $50M toward this effort and will invest an additional $45-50M in the next 6 months. Step 2 is to initiate investment in Rocket Propulsion Systems, in compliance with the FY2015 NDAA. We will award multiple contracts with propulsion system or launch system providers to partner with their on-going investments in

domestic propulsion systems. In Step 3, we will continue our public-private partnership approach by entering into agreements with launch system providers to provide domestically powered launch capability for the Nation. In the final step, step 4, we will compete and award contracts with certified launch providers for launch services for 2018 and beyond. These providers will on-ramp the systems developed under our shared investment while off-ramping legacy systems, which use Russian engines. With this approach, we are confident that we can partner with American industry to develop a domestic propulsion system and integrate it into a launch system.

We believe we can reintroduce competition to National Security launch and transition off the Russian RD-180. However, Section 1608 of the FY15 NDAA sets restrictions on using the RD-180 for National Security launches and introduces a risk that we will not be able to achieve our objective of being able to competitively contract beginning in 2018.

Consequently, we submitted a legislative proposal to adjust the Section 1608 language so that we can meet our statutory and military requirements. We are recommending that we allow the use of engines ordered, but not fully paid for, prior to February 1, 2014. This proposal would allow us the flexibility to keep the cost-competitive Atlas in play until we have a domestic alternative. My goal is to work with you to achieve our two mutual objectives of introducing competition and ending reliance on foreign engines.

The other important part of our strategy to reintroduce competition is our ability to certify new entrants to the National Security launch enterprise. This year, we have had been able to make good progress with Space X, as our first new entrant.

New Entrant Certification

On February 11, 2015, a SpaceX Falcon 9 lifted off from Launch Complex 40 at Cape

Canaveral Air Force Station, Florida carrying the Deep Space Climate Observatory (DSCOVR) satellite. DSCOVR is a partnership between the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA) and the Air Force. More importantly, the launch demonstrated a successful partnership between the Air Force and Space X. The combined team's focus on mission assurance bodes well for a future Air Force - SpaceX partnership and opens the door for reintroducing competition into National Security launch.

Launch Competition

Since 2006, to safely launch our capabilities we have relied on a single industrial partner whose mission success is superior. We now have an opportunity to leverage a growing commercial launch market to drive down the price of NSS launch solutions. We are absolutely committed to support competition and a healthy space industrial base. The Air Force is committed to getting new entrants certified as quickly as possible.

SpaceX has made tremendous progress in establishing their place as a DoD launch provider. The combined SMC-SpaceX team continues to work aggressively in order to finalize technical issues required to certify the proposed Falcon 9 v1.1 configuration and associated SpaceX design, production, operations and management processes. Currently, SpaceX is on track to be certified by June 2015.

Finally, we are committed to continuously improve our processes. We commissioned a review of our new entrant certification process by an independent team to examine our processes, procedures and personnel resources dedicated to the certification effort as well as capture lessons learned.

Savings through Block Buys

Building on successful block buy acquisitions by the Advanced Extremely High Frequency (AEHF) and Evolved Expendable Launch Vehicle (EELV) teams in 2013, the Remote Sensing Systems Directorate negotiated a $2 billion satellite production contract to support the acquisition of two new Space-Based Infrared Systems (SBIRS) missile warning satellites. The SBIRS production and contracting team negotiated and awarded the contract in June 2014. By leveraging OSD Better Buying Power initiatives and using a block buy strategy, the program office saved $1 billion compared to the OSD estimates, with an overall "should cost" savings of $591 million. These two new satellites are scheduled for delivery in September 2020 and July 2021, ensuring continuity of the Nation's critical missile warning capability.

Autonomous Flight Safety System (AFSS)

We are also actively working with our launch providers and other users to realize a more agile, robust, capable and resilient range, while reducing user obstacles and spacelift range costs. The AFSS is an autonomous on-board range safety system that can augment or replace functions of the traditional terrestrial flight safety arrangement. Transitioning our Launch Ranges to AFSS is absolutely essential for the Air Force to stay relevant in the field of space launch.

A collaborative developmental design and testing process is currently in work between SpaceX and AFSPC to operationally demonstrate, qualify, and certify new AFSS flight hardware and software. Flight certification will occur when SpaceX successfully meets codified requirements culminating in an AFSS-launch expected to occur as early as fourth quarter 2015. Additionally, Blue Origin has submitted a program introduction with intent to fly AFSS in 2019 on the Eastern Range. The rest of the industry has expressed similar interest.

Over the last decade, this technology has made significant strides solidifying its position

as a necessary upgrade for improved safety. We must continue to leverage the exponential advances in technology to achieve quantum leaps in launch operations while further reducing ground infrastructure. Within the context of assured access to space, safety is non-negotiable. It will remain the Air Force's primary concern and must always be considered as we move forward with this technology. The successful implementation of the AFSS will demonstrate revolutionary capabilities through new technologies and enable the Air Force to make range operations safer than ever before while achieving another major goal in affordability. We have a goal for AFSS to be open for business in 2016.

Space Situational Awareness

While assured access is a priority, space situational awareness (SSA) underpins all we do in space from launch to disposal and supports the protection of critical space assets upon which our national leadership, warfighters and civil and commercial space operators depend. We have developed a foundational SSA architecture that will afford the best mix of near earth and deep space sensors, providing quality information to decision makers. While we are routinely tracking some 23,000 objects at the Joint Space Operations Center (JSpOC), our sensors are unable to detect and reliably track what we estimate to be more than 500,000 man-made objects in orbit today. Currently, SSA sensors are tracking where we think objects should be. Space domain awareness is the next evolution, facilitated by the JSpOC Mission System (JMS), and will allow us to know where objects are, when they move unexpectedly, and provide the data for the Commander, Joint Functional Component Command for Space (JFCC-Space). This will allow and JFCC-Space forces to respond appropriately.

Joint Space Operations Center (JSpOC) Mission System (JMS)

JMS will provide persistent net-centric delivery of SSA and command and control services to other JFCCs, Joint Task Forces, the Intelligence Community, and SSA data sharing

partners. In November 2014, the JMS Program team was successful in providing the requisite capability for the Fourteenth Air Force Commander, Lieutenant General Jay Raymond, to declare operational acceptance of JMS Service Pack 7 for use in the JSpOC; including a $1.1 million upgrade of all computers on the Air and Space Operations Center floor. This iteration of JMS lays the groundwork for the next step of the system's evolution – Service Pack 9, which will operationally transition the Space Catalog to JMS.

JMS is a mission system with an open architecture and a high performance computing environment, designed to give our operators a modern capability to integrate SSA data allowing for predictive awareness, timely threat assessment and mitigation towards true command and control of space forces. For today's warfighter, timely, accurate, and actionable information is critical. JMS is laying the foundation, both for improved information architecture and foundational SSA capabilities with Increments 1 and 2. We must continue to drive forward toward Increment 3 and beyond in order to see this vision realized with the threat processing, decision support and enhanced command and control capabilities that include multi classification data fusion.

Geosynchronous Space Situational Awareness Program (GSSAP)/ Space Based Space Surveillance System (SBSS)

We are continually looking to improve our SSA posture. The first two GSSAP satellites successfully launched in July 2014 are going through checkout. Once complete, the constellation will revolutionize space-based space surveillance operations. It will give us the capability to perform persistent monitoring and neighborhood watch capability in geosynchronous Earth orbit (GEO).

Furthermore, its Low Earth Orbit (LEO) based predecessor, SBSS celebrated its fourth anniversary on orbit while continuing its tremendous contribution to the Space Surveillance Network.

Operationally Responsive Space (ORS) & SBSS Follow-On

The Air Force is committed to the ORS office. We are working to launch ORS- 4, which will be the first flight demonstration of a rail launcher delivering payloads to orbit. Using a rail launcher allows for a simpler rocket that is spin stabilized instead of using moveable nozzles on the first stage motor. We are also supporting USSTRATCOM's urgent need for SSA with ORS-5, expected to launch in FY17, and ultimately SBSS Follow-On. ORS-5 started off well in 2014, successfully accomplishing a systems requirements review and one of three prototypes in the program. Additionally, the program office released a draft request for proposal for launch services. This program is a risk-reduction pathfinder to the SBSS Follow-on program.

Last week, the ORS Executive Committee approved the ORS office to execute the gap-filler program to provide key ocean surface wind data for our forces. This gap-filler will help in the transition to the Weather Satellite Follow-On program.

Space Fence

Another future contributor to the SSA mission is the Space Fence. This ground sensor will replace the already retired Air Force Space Surveillance System and is expected to greatly increase our ability to understand the battlespace and inform warfighter decisions. The increased Space Fence sensitivity, coupled with the increased computing capabilities of JMS, will yield a greater understanding of the space operating environment and associated threats, while increasing our knowledge on over one-hundred thousand objects – including debris, active and inactive satellites, and the international space station. The uncued nature of the Space Fence will

greatly increase the opportunity to discover satellite breakups, collisions, or unexpected satellite maneuvers. The Air Force awarded the Space Fence contract to Lockheed Martin in June 2014, with a current projected initial operating capability in the second quarter of FY19.

The Space Fence will be the most significant improvement in near Earth SSA capability in nearly 50 years. It will work in conjunction with the JSpOC and the rest of the Space Surveillance Network to provide an integrated picture of the space operating environment for the warfighter. The delivery of the Kwajalein radar in 2019 will give JFCC-Space nearly complete coverage for detection of near Earth objects as well as improved ability to detect unforeseen or unannounced space events. The Space Fence will not solve all the near Earth needs alone, but will operate in conjunction with the legacy missile warning radars and other space surveillance network sensors.

Resilient Space Systems

Space mission assurance encompasses resilience, defensive operations, and an ability to reconstitute. Without exception, the first requirement is resilient warfighting architectures in space to operate through any degraded environment. We need a resilient space architecture that can fight through any threat in order to deter potential adversaries and preserve critical space capabilities for the warfighter. There are several methods to consider in achieving resilient space architecture. We're exploring disaggregation, hosted payloads, on-board satellite protection, orbital regimes, defensive operations and leveraging commercial and allied/partner capabilities as possible ways to increase overall resiliency. Resiliency includes integrated real-time intelligence through enhanced SSA systems being shared internal to the government and with partner nations. Resilient architectures also include new technologies for enhanced survivability in order to give future operators options to dynamically respond to threats.

We will bring forth an answer that incorporates disaggregation, along with other

capabilities, to obtain the resilient capability we need in the future. Ultimately, we do not want to be in a position where the disruption or elimination of one satellite denies our forces the advantages of the warfighting capabilities derived from space.

Another method of disaggregation is utilizing hosted payloads to provide resilient, affordable military space capabilities in a quickly evolving space environment. The Air Force will use hosted payloads when it is architecturally feasible to lower cost and still deliver the capability. Hosted payloads can increase the Government's access to space and add resilience to U.S. military space systems through disaggregation, while reducing cost and improving schedule. Consequently, SMC has established a hosted payload office dedicated to examining the efficacy of this concept as an alternative to our current approach to satellites. In 2014, SMC awarded an indefinite-delivery-indefinite-quantity (IDIQ) contract under the Hosted Payload Solutions (HoPS) program. The multiple-award HoPS IDIQ contract provides a rapid and flexible means for the Government to acquire commercial hosting capabilities for government payloads. Award of the HoPS contracts created a pool of qualified vendors and provides flexibility for up to six hosted payloads. Ultimately, the goal will be to create a streamlined and reproducible procurement vehicle to secure affordable and resilient access to space.

Confronting Budget Challenges

Although these mission assurance techniques can help with certain aspects of our space budget, we must be mindful of today's fiscal environment. After making difficult decisions as a result of significant cuts in FY13, we greatly welcomed the short-term budget relief and flexibility represented in the FY14 and FY15 budgets. The relief provided some measure of recovery from FY13 and enabled our Airmen to make significant accomplishments in 2014 in support of the joint warfighter. We support the President's FY16 budget to help ensure we can sustain these critical space capabilities.

The President, the Secretary of Defense and the Chairman of the Joint Chiefs have all acknowledged the importance of space, but the fact remains there will be incredible competing priorities within the Department.

Impact of Sequestration

Should we return to funding levels as directed by the Budget Control Act (BCA) of 2011 and its mechanism of sequestration, we will have a difficult time meeting its operational requirements for space systems in place today. Additionally, it has the potential to reverse gains we made in FY14 and FY15 addressing infrastructure and range maintenance, readiness and modernization.

Sequestration's impact on the Launch Test Range System could mean reduced launch time on the ranges or a reduction in the number and types of assets available to range users, thus reducing redundant capabilities to a minimum and significantly increasing launch on time risks. These reductions would make range assets unavailable to the warfighter and it is important to note, similar actions in FY13 led to a multi-day launch slip.

Within the investment portfolio, sequestration threatens FY16 competitive launch opportunities. Programs such as SBIRS 5-6, AEHF 5-6 and Space Fence will incur significant cost impacts if program offices cannot meet contractual funding requirements due to fixed price contracts. A funding shortfall will make it necessary to renegotiate contracts resulting in cost increases and delays.

Additionally, sequestration will impact weapon systems as well as facility sustainment, restoration and modernization programs resulting in deferral of critically needed facilities and infrastructure maintenance and repair projects. For example, the range communications facility at Cape Canaveral Air Force Station is a 58-year-old structurally compromised facility prone to

severe flooding, creating mission risk for eastern range launch operations and putting recent equipment upgrades at risk. The FY16 funding request for Military Construction includes $21 million for the construction of a new, state of the art, multi-level facility to accommodate modern communications equipment. With congressional support, the construction of a new range communications facility will not only reduce energy and maintenance costs, but also increase safe execution of spacelift operations for all organizations launching out of the eastern range.

Conclusion

Space has not only become ubiquitous in our daily life, but has also fundamentally changed how we fight and win wars. The integration and defense of the space domain will prove to be our success or failure. Therefore we must ensure unfettered delivery of these effects; effects from systems such as satellite communications, missile warning, position, navigation and timing, environmental sensing and supporting ground architecture. Given today's budget reality and looking forward, we will continue to work harder and smarter to meet warfighter demands while developing resilient warfighting architectures in space and cyberspace to operate through any degraded environment. We have overcome the challenges of the past with the ingenuity and dedication our Airmen are known for and stand ready to meet the future with the same commitment.

We look forward to working with Congress and this Subcommittee on our efforts to provide resilient, capable, and affordable space and cyberspace capabilities for the joint force and the Nation. Thank you for the opportunity to appear before this Subcommittee and for your continued support.