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COMMITTEE ON ARMED SERVICES
SUBCOMMITTEE ON STRATEGIC FORCES

DEPARTMENT OF THE AIR FORCE

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

SUBJECT: SPACE POSTURE

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Introduction

Mr. Chairman and distinguished members of the subcommittee, it's a great honor to appear before you today to represent the Air Force Space and Missile Systems Center (SMC) and discuss the budgets and progress of AF space acquisition programs. SMC has a critically important mission, a proud heritage and a highly skilled force of some 4,500 space acquisition professionals. Our roots date back to 1954 when the U.S. Air Force activated the Western Development Division under the leadership of Brig Gen Bernard Schriever to develop intercontinental ballistic missiles for the nation. Ultimately, those early innovations laid the foundation for our nation's entire military space program. Now, more than 50 years later, we are leading the development and acquisition of critical military space capabilities for the 21st century. The space frontier is critical to our nation's warfighters and SMC delivers the operational capabilities to control and exploit the ultimate high ground of space.

Space has evolved since the mid 1950's from a fledgling research organization to an indispensable element of our nation's joint warfighting capabilities. I am privileged to serve as the Commander of SMC and the AF Program Executive Officer (PEO) for Space and am responsible for developing, acquiring, fielding and supporting a comprehensive set of satellites, launch vehicles, missiles, radars, ground systems and user equipment. SMC has been the premier space development and acquisition organization within the Department of Defense, and provides the majority of space operational capabilities for the AF and DOD.

SMC Today

Today, SMC is simultaneously supporting and sustaining current operational capabilities in-orbit, developing the next generation of space and ground systems, and demonstrating advanced systems and technologies that will transform future military operations. The progress and accomplishments we've achieved in the recent past are most impressive. In the launch business, we have successfully transitioned from our legacy launch systems to the new, more flexible family of reliable launch vehicles. The last of the Titan launch vehicles thundered into the history books in October 2005 setting the new record for consecutive major launch successes at 43 in a row. The new evolved, expendable launch vehicles – Atlas V and Delta IV -- are proving their value with every new launch – the most recent being NASA's New Horizons Pluto mission to space on 19 January 2006.

Our satellite constellations are capable and robust, performing well beyond their designs. For example, our defense weather satellites were designed for three years of life, yet Flight Vehicle 13 just reached 11 years of on-orbit service. These systems continue to provide operational service which we've come to depend on, and sometimes take for granted.

Although the Space Based Infrared Systems program has experienced significant difficulties, we have recently delivered two sensors to fly on host satellite platforms and are well along in testing of the geostationary orbit sensor and satellite bus. This system promises to provide much improved capabilities to detect, warn and defend against ballistic missiles, as well as provide new battlefield and intelligence information. We're looking forward to launching this very important system within a few years.

The Global Positioning Satellite constellation has transformed military operations, as well as civil transportation, banking, communications, energy and many other aspects of modern life. Last fall we launched the first modernized GPS satellite, which provides important new signals and services for both military and civil users, and have improved accuracy to users by some 15%. While we continue to improve on orbit capabilities and user services, the GPS constellation is aging. We are aggressively working to develop and deploy new GPSIIF satellites and to pursue the next generation system, GPSIII.

We are developing a full array of advanced satellite communications systems that will provide wideband, protected, broadcast, tactical and data relay capabilities for joint expeditionary operations. Modern military operations requires massive quantities of information and communications across the battlefield and around the globe – space based communications systems provide the rapid, responsive means to link commanders, combat forces and information across the battlespace. We have a number of developmental products in the pipeline. The Advanced Extremely High Frequency satellite, the Wideband Gapfiller Satellite and the Transformational Satellite program will offer combatant commanders options unthinkable only a few years before.

In addition to individual programs, SMC is also realigning its organization and processes to improve program development and execution across the space enterprise. We are reinstituting our space developmental planning organization to better refine concepts, technologies and future programs. We are restoring our systems engineering, architectures, program management, cost estimating, test and evaluation and program control capabilities across the entire center. These efforts will ensure better understanding of the costs, risks, and performance of new concepts and technologies

before committing to major acquisition programs and improve execution of system developments and procurements.

We're proud of our accomplishments but also recognize we have problems, which we are addressing with full focus and determination. We've experienced cost overruns and schedule slips in too many of our space programs, which has delayed delivery of operational capability to the Warfighter, undermined our credibility, and reduced confidence in the space development community. There are many underlying causes for the erosion of our space acquisition performance, which have been identified in various DOD studies and reviews and there is clear consensus on steps we need to take to restore acquisition performance. We know the "recipe for success" in space acquisition and have a comprehensive plan to get space acquisition back on track.

Back to Basics

Our overarching strategy to restore acquisition performance is to get "back-to-basics." We're reestablishing structure and discipline by applying strong systems engineering practices in the early stages of each program; by addressing mission assurance from the beginning; and by thorough testing of components and systems early and often. We are reestablishing standards and specifications in our contracts to insure common language and expectation with industry. A rigorous mission assurance process is being applied to all launch and satellite programs to insure strict adherence to design, parts, testing and quality control standards from system development through on-orbit checkout.

Cost estimating is a critical element of the space acquisition process. We're working hard to improve schedule planning, cost estimating and risk assessment on all

programs to better forecast how many taxpayer dollars will be needed for each mission. It is critical that we provide lawmakers with accurate estimates to increase confidence when making decisions on these systems. We must better understand cost, schedule, requirements and risk trades if we are to make informed program decision and better assure mission success. We're also restoring strong program control functions and expertise within our systems program offices. This will allow us to more effectively plan, monitor and assess contactors' cost, schedule and technical performance in individual programs and across families of systems. The program control function is critical to maintaining a true picture of program status and baseline control.

Another focus area of SMC's "back to basics" strategy is renewing and redefining partnerships across the space enterprise – developers, operators, users and industry. Space is a "team sport" and every member of the team must perform to their highest level if we are to be successful. The stakes are high and the environment is unforgiving – we do not get two chances to do it right. We have established a "benchmarking" process with all our major contractors to provide candid two-way feedback to foster "best practices" and continuous improvement. The space enterprise is founded on a healthy set of checks and balances that are focused on mission success. Personal initiative and accountability are essential at all levels since a single lapse in attention to detail can spell the difference between success and total failure. Effective teamwork between government and industry -- prime contractors, subcontractors and suppliers – is essential. We can't succeed without each other.

SMC is increasingly focused on our customers -- space operators, joint warfighters and civil partners. We must understand their needs in an unpredictable

world, filled with uncertain threats and rapidly changing situations. SMC strives to meet their needs with responsive development processes and the timely fielding of capabilities. We increase our ability to respond by partnering with the Air Force Research Lab, Air Force Material Command, US Strategic Command and other services and agencies to ensure we provide for their needs technically and operationally. The space community will achieve its full potential only if we reduce fragmentation and conflicting agendas. As the use and dependence on space grows across the military, it is imperative that the national security space community work in a more coordinated, collaborative and interdependent fashion.

Last month, Under Secretary of the Air Force Dr. Ronald Sega and SMC co-sponsored a National Security Space Program Managers' Conference to expand teamwork and lines of communication between program managers across the national security space community -- NRO, MDA, Electronics Systems Center (AFMC) and Navy and Army space organizations. This collaboration helps share experiences and "best practices", provides more problem-solving resources, and promotes cross-flow of experience and workforce. Instead of competing for valuable resources, such as dollars and personnel, we leverage what we have across the space enterprise.

Reductions in the space acquisition workforce of the past decade and the loss of critical skills have had direct and significant impacts on mission success and program performance. A top priority for the AF and SMC is to rebuild the space acquisition workforce. We depend on a mix of military, civilian, federally funded R&D contractors (FFRDC) and other support contractors to manage the complex developments and contracts. SMC has aggressive efforts underway to improve recruiting, retention,

education, training and mentoring of our workforce. Through partnerships with the educational, industrial and governmental institutions, we are working to increase the cadre of highly talented and experienced space acquisition people to meet the needs across the community. SMC is working to attract more officers and civilians with technical degrees and higher levels of experience. We have established educational programs with universities, military institutes (such as the Air Force Institute of Technology and the Naval Postgraduate School) and defense contractors to enhance understanding of system engineering and program management. Assignment length for military personnel has been extended from three to four years to insure they gain increased depth of experience, and that we improve continuity and accountability in programs. We've also created opportunities for leadership development, assigning more civilians as deputy program managers, sending greater numbers to Squadron Officers School, Air Command and Staff College and the Air War College.

We depend upon the Aerospace Corporation and other FFRDC's to provide deep technical and engineering expertise and continuity in our programs. We also augment our workforce with other systems engineering and technical assistance (SETA) contractors. We cannot do our job without these critical partners. Continued tight budgets will likely increase pressures to limit or reduce support contracts – we will work to be more efficient, but it is essential that we maintain critical skills if we are to effectively manage the billions of dollars in development programs.

Another priority for SMC is to improve horizontal integration across our programs and the broader space enterprise. This includes organizing to enhance engineering and architectural standards and processes; implement best business practices

for contracting, incentives, and budgeting; improve development planning, modeling and analysis and technology planning. Horizontal integration of expertise across the space acquisition enterprise creates efficiencies of resources and mission accomplishment using "best practices" and world-class processes across the portfolio. Understanding mission requirements and common architectural solutions will allow individual program offices to share experiences, resources, and solutions based on common systems engineering principles. The payoff of this horizontal integration is that the systems SMC delivers to space operators and joint commanders will enable more integrated and responsive air, land, maritime, space and cyberspace operations.

Another key to improving acquisition performance in space programs is the AF's effort to implement a new business model for space acquisition. We are establishing and applying a block or incremental approach to developing, acquiring and fielding space systems across the Air Force. The objective of this approach is to reduce program cycle time and redistribute risk across a program's life cycle, from early phases of technology maturation through system development and operational system procurement. We'll more consciously allocate risk across different phases in the life cycle of programs. The highest risk will be in the earliest stage of science and technology -- production programs will be based on mature technology for the lowest risk. We will insure more mature technologies, more stable requirements, and more discipline in end-to-end systems design. The expectation is that cycle times will be reduced and that we'll be able to maintain cost and schedule with higher confidence, and produce more effective capabilities sooner by synchronizing science and technology, technology development, systems development and demonstration, and systems production. The Global

Positioning System, Space Based Radar, Space Based Space Surveillance System and Transformational Communication Satellite programs are pioneering the process now.

Conclusion

Space capabilities have become an integrated and indispensable element in virtually all joint military operations. They provide the means to plan and execute operations across the globe, and enable unprecedented speed, precision and effectiveness. Today the U.S. enjoys an asymmetric military and national security advantage from these cutting edge systems. Further, space is increasingly important in civil and commercial applications and serves as an engine of economic and technological leadership. Maintaining our military advantage demands that we continue to develop and field the most advanced and affordable space capabilities possible. We have experienced many problems in space acquisition in the Air Force and across the government and industry. We know the root causes of these problems and have a comprehensive, "back to basics" strategy for restoring our space acquisition performance. It will take time to achieve full results, but we are making significant progress in rebuilding our capabilities, getting troubled programs on track and insuring important new programs are set on a solid foundation from the beginning. We appreciate the support from Congress for the programs and budgets that are essential to insuring our nation and its military forces retain the unique advantages we derive from space. SMC and its partners in government and industry are committed to making space acquisition the model across the DOD and to provide our military forces the finest space capabilities possible.