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Good morning, Mr. Chairman, Senator McCain, and distinguished Members of the Committee. I appreciate the opportunity to testify before you today on the proposed Fiscal Year (FY) 2010 budget for developing and improving the Department of Defense's missile defense program.

We are proposing approximately $7.8 billion for missile defense in FY 2010 in response to Secretary Gates's budget guidance and to allow for programmatic flexibility to respond to the Quadrennial Defense Review and the congressionally mandated Ballistic Missile Defense Review. Specifically, "we will restructure the program to focus on the rogue state and theater missile threat." The dramatic increase of over 1,200 additional short- and medium-range ballistic missiles in just over the past five years, explains the war fighter's strong interest in fielding more regional and theater missile defenses. But, our focus on the rogue-state threat was not done at the expense of our long-range defenses. We are improving operational readiness of the GBI fleet and the ground-based midcourse defense capability to defeat a limited long-range rogue state. Additionally, we propose investing $368 million in FY 2010 for the development and deployment of capabilities to cost-effectively intercept missiles in their early phases of flight during the first half of the next decade. Leveraging emerging technologies to intercept missiles early in their flight can hedge against threat growth and realize the greatest potential for reducing

cost and increasing operational effectiveness of missile defense. Our overall approach to developing ballistic missile defenses is also consistent with the findings of the Congressional Commission on the Strategic Posture of the United States: "The United States should develop and, where appropriate, deploy missile defenses against regional nuclear aggressors, including against limited long-range threats. It should also develop effective capabilities to defend against increasingly complex missile threats."[1] Additionally, we will continue to execute to the fullest extent of the law the upper tier European Capability program to counter long-range attacks, deferring radar and interceptor deployments until policy reviews are complete. We also will execute a rigorous test program, which includes expanding our flight test program to test our capability against medium-, intermediate-, and long-range threats, to build the confidence of U.S. and allied stakeholders in the BMDS, bolster deterrence against their use, and send a powerful message to potential adversaries looking to acquire ballistic missiles.

Finally, the FY 2008 National Defense Authorization Act required MDA to submit its budget using four appropriations: RDT&E, Procurement, O&M and MILCON. The FY 2010 component of our recent budget submission includes three of these appropriations, and we will satisfy the requirement for the fourth appropriation (O&M) by FY 2012. In developing PB10, we considered several candidates for O&M funding and determined all of these candidates were still

[1] William J. Perry and James R. Schlesinger, *America's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States*, May 2009, http://media.usip.org/reports/strat_posture_report.pdf, p. 33.

developmental assets and did not satisfy the criteria for O&M beginning in FY 2010. The Terminal High Altitude Area Defense (THAAD) program is planned to be fielded to the Army and we will request O&M funding beginning in FY 2012.

Threat

The proliferation of ballistic missiles of all ranges continues. I defer to the Intelligence Community for more detailed estimates, but current trends indicate that proliferation of ballistic missile systems, using advanced liquid- or solid-propellant propulsion technologies, are becoming more mobile, survivable, reliable, accurate and capable of striking targets over longer distances. The proliferation of ballistic missiles is increasing the number of anti-access weapons available to potential regional adversaries. These weapons could be used to reduce military options for Combatant Commanders and decrease the survivability of regional military assets.

Iran has grown its short- and medium-range missile inventories, while improving the lethality, deployability, and effectiveness of existing systems with new propellants, more accurate guidance systems and payloads. Iran's launch of a solid-fuel, 2,000 km medium-range ballistic missile last month demonstrates a capability to strike targets in Israel as well as southern Europe. And with the successful launch of the Safir Space Launch Vehicle on February 2, 2009, Iran demonstrated technologies that are directly applicable to the development of ICBMs. North Korea deploys a No Dong ballistic missile capable of reaching Japan and South Korea and U.S. bases throughout the region, and continues to develop a

new intermediate-range ballistic missile (IRBM) capable of reaching Guam and the Aleutian Islands. Despite the failure to place an object in orbit on April 5, 2009, North Korea successfully demonstrated the same staging and separation technologies required to launch a two-stage Taepo-Dong 2 ICBM capable of reaching the United States. An additional concern is North Korea's and Iran's repeated demonstrations of salvo launches, indicating large ballistic missile attack raid sizes must be considered in developing the BMDS capability. Syria continues to field updated short-range ballistic missile (SRBM) systems and acquire Scud-related equipment and materials from North Korea and Iran.

In sum, there has been an increase of over 1,200 additional ballistic missiles over the past 5 years. The total of ballistic missiles outside the United States, the North Atlantic Treaty Organization (NATO), Russia, and China to over 5,900 (with SRBMs making up 93% of this total and MRBMs making up 6%), with hundreds of launchers and missiles within the range of our deployed forces today.

Missile Defense Interceptor Development

The SRBM defense capabilities of the BMDS consist of the Patriot Advanced Capability-3 (PAC-3), THAAD, and the Aegis SM-2 Block IV and a portion of the SM-3 Block IA missile battle space with associated fire control software. PAC-3 uses hit-to-kill technologies to intercept SRBMs in the atmosphere in the terminal phase of flight. MDA transitioned PAC-3 to the U.S. Army in March 2003, and although we continue to exercise configuration

management, provide sustaining engineering, and retain architectural responsibility, MDA does not manage the upgrades to PAC-3 such as the Missile System Enhancement (MSE).

Terminal High Altitude Area Defense (THAAD). THAAD is a near-term transportable capability that will enhance the ability of Combatant Commanders to wage theater wars by intercepting SRBM and MRBM threats using hit-to-kill technologies. THAAD consists of interceptors, command and control, and a THAAD-configured AN/TPY-2 radar software. The THAAD missile is uniquely designed to intercept targets both inside and outside the Earth's atmosphere, making the use of countermeasures against THAAD in their terminal phase difficult. For FY 2010, we are requesting $420 million for THAAD procurement. The full funding policy using procurement funds has been applied to the THAAD procurements beginning in FY 2010. We also are requesting $665 million of Research, Development, Test & Evaluation (RDT&E) funding for THAAD. We will deliver 25 THAAD interceptors in FY 2010 for batteries 1 and 2 using RDT&E funds and, in response to war fighter requests to bolster defenses against rogue state threats to our forces and allies, increase the production rate from three to four interceptors per month using procurement funds. We also propose to invest in communication hardware and software to enhance THAAD integration into the BMDS, enhance testing and modeling and simulation, and conduct risk reduction development for increasing the range of THAAD interceptors.

THAAD's test record is 6 intercepts out of 6 attempts against SRBMs. Early in FY 2008, soldiers of the U.S. Army's 6th Air Defense Brigade conducted THAAD's demonstration of autonomously intercepting a short-range "Scud-type" unitary target just outside the atmosphere. In June 2008 THAAD intercepted a separating SRBM target. On March 18, 2009, we launched a salvo of two THAAD interceptors based on a cue from an Aegis BMD ship to intercept a separating target high in the earth's atmosphere. Not only did the primary interceptor hit the target, but the second THAAD interceptor also hit the largest remaining piece of target debris seconds later.

In FY 2008, THAAD participated in six war games and exercises with Combatant Commanders to train soldiers and help develop tactics, techniques and procedures. THAAD's involvement with C2BMC, PAC-3 and Aegis in MDA ground tests for theater and strategic missile defense engagements provided data to support BMDS capability assessments.

Through Foreign Military Sales, the United Arab Emirates Government requested 3 THAAD batteries and one additional radar to maximize availability. This will represent a potential $6.9 billion FMS sale for the U.S. Government, which would greatly enhance deterrence in the region. Additionally, other Gulf Cooperation Council countries have requested performance and cost data for THAAD.

Despite THAAD's significant successes, the program continues to address production qualification issues of several remaining missile components, including

a critical ordnance initiation safety device. Successful qualification of this component by the end of FY 2009 is necessary to gain my approval for an Army Material Fielding Review in FY 2010.

Aegis BMD. Aegis Ballistic Missile Defense (BMD) cruisers and destroyers integrated with SM-3 hit-to-kill interceptors and SM-2 terminal interceptors provide a unique mobile capability that may be surged to a region to protect deployed forces and allies against SRBMs and MRBMs. In FY 2010, we are requesting $169 million for Aegis BMD procurement and $60 million to begin installing missile defense capability on six more Aegis ships. We will deliver 26 SM-3 Block IAs in FY 2010. Like THAAD, additional funding ($60 million) is included for Aegis BMD to move towards meeting the full funding policy for the procurement of each lot of missiles. We are also requesting $1.691 billion for FY 2010 for RDT&E to develop enhanced theater-defense capabilities, hardware and software development and ship upgrades, fielding of the initial Aegis BMD regional/theater defensive capabilities, Aegis BMD sustainment, near-term sea-based terminal development and initial development of a land-based SM-3 interceptor.

In FY 2008, Aegis BMD began significant upgrades to the BMD Signal Processor in the Aegis BMD weapon system and delivered 20 SM-3 Block IA interceptors. We also updated software (BMD 3.6) on eight U.S. destroyers, bringing the total number of U.S. Aegis BMD-capable ships ready on station at the end of 2008 to 18, a year ahead of the original schedule. MDA also installed

engagement software (3.6) on the Japanese Destroyer Kongo and began installation of the more advanced fire control software (4.0.1) in the U.S.S. Lake Erie. Aegis weapons system software build 4.0.1 will allow Aegis to launch SM-3 missiles sooner than the organic Aegis Spy-1 radar allows by leveraging external BMDS sensors thus greatly expanding the area defended by a single Aegis ship. We plan to continue software development for potential installation on all Aegis BMD ships during the next decade to enable the deployment of the more capable SM-3 Block IB interceptor and, eventually, the long-range SM-3 Block IIA interceptor currently being developed with our Japanese partners for operational capability in the later half of the next decade.

Early in FY 2008, we demonstrated Aegis capability to simultaneously engage two short-range unitary ballistic missile targets using SM-3 Block IA interceptors. In FY 2008, we also completed an end-to-end Multiple Element Integration & Test for the 3.6.1 software and deployed the first Aegis BMD ship (U.S.S. Ramage) on the East Coast. In December 2007, we conducted the first intercept of a ballistic missile with an allied navy ship. Using the SM-3 Block IA, the upgraded Japanese Destroyer successfully intercepted the medium-range separating target in space. This test also marked a major milestone in the growing missile defense cooperative relationship between Japan and the United States. In a subsequent test in November 2008, the Japanese Maritime Self Defense Force performed another successful interceptor launch and fly-out, but a few seconds prior to intercept, the kill vehicle's guidance control motor failed resulting in a test

failure. The failure investigation of the SM-3 Block IA continues with a confirmatory flight test this summer.

The U.S. Navy and MDA are also collaborating on plans for a near-term sea-based terminal defensive capability to enhance the Combatant Commander's ability to protect seaborne forces and complement other regionally deployed missile defense assets. MDA is upgrading the Aegis BMD weapon system, and the Navy is upgrading the SM-2 Block IV missile with plans to eventually deploy approximately 70 interceptors to provide a near-term terminal engagement capability on Aegis BMD ships that began in 2008. Additionally, in June 2008 we intercepted a short-range target in the terminal phase of flight using a dual salvo SM-2 Block IV with modified Aegis ship software. Unlike the SM-3 interceptors, which use hit-to-kill technologies to collide with a target, the SM-2 missiles for the near-term sea-based terminal defense capability use an explosive charge in very close proximity to the target to destroy the threat missile. We continue to develop with the Navy an advanced sea-based terminal defense solution for more effectively countering short-range ballistic missiles.

The SM-3 Block IB missile with Aegis 4.0.1 BMD fire control software is being developed to counter SRBMs, MRBMs, and IRBMs. The SM-3 Block IB will have greater reliability, producibility and performance against more advanced threats and clutter during end-game. The first controlled test flight of the SM-3 IB is scheduled for FY 2010.

We are continuing our work with Japan to substantially increase Standard Missile-3 range and lethality by developing a 21-inch diameter SM–3 Block IIA interceptor. We are working to add this capability to the BMDS in the next decade, after we complete the necessary testing with Japan, as a hedge against the possibility we may see a proliferation in longer range threats over the next decade. This effort is one of the largest and most complex cooperative projects ever undertaken between Japan and the United States.

Ground-based Midcourse Defense. We are requesting $983 million in RDT&E for GMD to improve protection of the United States against the limited number of state launches of IRBMs and ICBMs. In FY 2010, we will maintain this long-range defense capability with missile fields at Fort Greely, AK (FGA), and Vandenberg Air Force Base (VAFB), CA, where we will maintain 26 and 4 Ground-Based Interceptors (GBIs), respectively. While the number of missile silos will remain at 26 at FGA, we will transition to newer silos to improve operational readiness. Thirty highly ready operational GBIs will provide the United States with a substantial fire power of operational interceptors considering the limited number of ICBM capable launch complexes in North Korea and Iran. The FY 2010 budget reflects our commitment to procure the complete buy of 44 GBIs on contract, of which some will go to the replacement and refurbishment of the 14 oldest interceptors to improve the operational readiness of the fleet and extend the U.S. GBI production capacity. Further need for additional GBIs will be studied. Additionally, two-stage GBI development will help sustain the GBI

production base and upgrade of avionics in FY 2010 while missile defense testing and the Ballistic Missile Defense Review, which will determine the need for additional GBI production, are completed.

In FY 2010, we also propose to fund GMD models and simulations, upgrades to increase the robustness and reliability of GMD communications, upgrades to the command and launch systems, and security, infrastructure and sustainment operations at FGA and VAFB.

In addition to this budget request for GMD, there are other significant mid-course defense development activities to enhance GMD's contribution to the BMDS in our proposed FY 2010 budget. Approximately $650M will benefit and enhance the operation of our long-range defenses, namely, test planning and execution and target development ($160.6 million); development and operation of the Sea-Based X-Band radar ($174.6 million); software development, system engineering, and External Sensors Lab work for the AN/TPY-2 X-band radar ($201 million); operation of the Upgraded Early Warning Radars ($28 million); modeling and simulations ($51.3 million); and work on the Single Simulation Framework ($36 million). Additionally, if FY 2009 Authorization and Appropriation Act requirements for Poland and Czech Republic ratification of the our ballistic missile defense agreements are met, additional funding for the European Capability in FY 2010 includes FY 2009 carry-over funding for RDT&E ($113 million), and MILCON ($151 million); and C2BMC, X-band radar

sensor control and capability, and GMD battle management support ($253.2 million).

We recently completed the construction of a second GMD missile field at Fort Greely (Missile Field #3) and a new multi-function test and operational silo and an additional In-Flight Interceptor Communication System Data Terminal (IDT) at VAFB. Additionally, we are upgrading the security infrastructure and completing the construction of a new power plant and power distribution system at Fort Greely. In FY 2008, we refurbished two existing GBIs, delivered two upgraded EKVs and emplaced two new interceptors early in FY 2009. One of our emplaced GBIs was removed in mid-year 2008 in order to provide a backup flight test interceptor for future flight tests. Unfortunately, we also experienced issues with unexpected health and status indicators of several GBIs in their silos that warranted removal to perform unscheduled maintenance and missile refurbishment. Furthermore, two of our emplaced GBIs have upgraded EKVs to address obsolescence issues, but will not be declared operational until their EKV configuration is flight-tested later this year. Once operational GBIs are emplaced in all 30 silos, we will begin replacing the oldest emplaced GBIs with the newest interceptors from the total 44 produced to maintain a high state of operational readiness in their latest configuration.

Due to problems associated with a non-tactical telemetry data encryption electronic card encountered in February 2008, we did not conduct GMD flight test 5 (FTG-05) until early FY 2009. During that flight test, the GMD system

intercepted an IRBM warhead within an operational architecture of sensors deployed in the Pacific region. We also intended to test the GMD exo-atmospheric kill vehicle (EKV) against simple countermeasures, but the inter-stage panels on the target failed to eject when commanded, and the countermeasures did not deploy. This was our last test using this particular target configuration, and we have added simple countermeasures to the next GBI test. During FTG-05 we also verified that Aegis BMD performed as expected and conducted a simulated engagement of this IRBM target.

Missile Defense Sensor and C2BMC Development

Continuously available, transportable, and mobile BMDS sensors provide real-time detection and tracking data to the system and the war fighter through command, control, battle management and communications (C2BMC). We are requesting $637 million for sensors in FY 2010. Major programmatic content in our request includes $45 million for contractor logistics support and another $73 million for additional operations support for the AN/TPY-2 X-band radars deployed in Japan and Israel. We are also requesting $340 million for C2BMC in FY 2010. Most of the request is allocated to the continued upgrading of C2BMC hardware and software to employ the sensor management and communication for our initial defense capabilities and develop the C2BMC planning and architecture to field a near-term early intercept capability.

The BMDS relies on space-based (Defense Support Program, space-based infrared satellites and, in the future, an operational Space Tracking and Surveillance System (STSS) constellation), sea-based mobile (Aegis BMD ships and Sea-Based X-band), and ground-based (Cobra Dane, Upgraded Early Warning Radar (UEWR), AN/TPY-2 and European Midcourse Radars) sensors to provide detection, tracking, classification and hit assessment information. The United States Air Force currently operates the UEWR at Beale Air Force Base, California and the Cobra Dane radar at Shemya, Alaska. The Royal Air Force operates the UEWR at Fylingdales Moor in the United Kingdom and, this year, we plan to complete system upgrades to the UEWR at Thule, Greenland using funds appropriated for FY 2009.

In July 2008 we conducted a major integrated sensor and C2BMC test (FTX-03) involving the simultaneous observation of an IRBM launched from Kodiak, Alaska using five operational BMDS sensors— the Air Force early warning satellite system, the forward-based X-band AN/TPY-2 radar near Juneau, Alaska, the UEWR at Beale, Aegis SPY-1 radar (USS Benfold), and the Sea-Based X-band radar (SBX) radar in the Pacific Ocean. We were able to conduct simultaneous processing of data from multiple sources, correlate this data into a single threat track, and develop an engagement solution for GBI to achieve the simulated intercept. War fighters conducted the associated radar, fire control, and simulated launcher operations. This same sensor and C2BMC architecture supported the intercept of an IRBM target by a GBI in FTG-05.

MDA is developing a C2BMC system that integrates the BMDS elements into a layered defense system. Key to C2BMC integration of the GMD, THAAD, Aegis and Sensor elements into an effective BMDS is the centralized development of 7 common missile defense functions called the BMDS "Unifying Missile Defense Functions" (UMDF). The UMDF (Communications, Sensor Registration, Correlation and System Track, System Discrimination, Battle Management, and Hit-To-Kill Assessment) will allow Combatant Commanders to automatically and manually optimize sensor coverage and interceptor inventory to defend against all ranges of ballistic missile threats.

Missile Defense Technology Development

A robust advanced missile defense technology development program is part of our strategy to hedge against future threat uncertainties. MDA is intensifying its focus on intercepting threat missiles early in their flight. Using new tactics, existing capabilities, and new applications of sensor technologies on Unmanned Aerial Vehicles, forward based radars and satellites, an early intercept strategy could allow us to execute a shoot-look-shoot tactic.. The development and fielding of command, control, communications, and sensor network, especially sensors to track missiles in the early phases of their flight, requires my greater emphasis. The capability to execute early intercepts places a premium on persistent surveillance of threat missile launches in specific regions of interest. Likewise, the emerging architecture will emphasize the forward positioning of

mobile and transportable missile defense assets, which would include sensors for early detection, a highly responsive and reliable C2BMC infrastructure, and energetic and agile interceptors.

The technological and operational challenges of intercepting threat missiles early in flight is significantly less challenging than in the boost phase, yet it can achieve almost the same benefits. By giving our mobile interceptors the opportunity to shoot early, we will be able to put several interceptors in the air at a given time to defeat large raids of threat missiles in a theater or region within the next several years

For FY 2010, we are requesting $180 million for the Space Tracking and Surveillance System (STSS) to demonstrate the technology to track cold threat objects from space by using two STSS demonstration satellites to be launched this summer. Sensors on STSS satellites could provide fire control quality tracking data for engagements of threat reentry vehicles and, when combined with radar data, will provide improved threat object discrimination. Following launch of the STSS, we will enter into a six-month on-orbit check-out period, after which we plan to use both targets of opportunity and dedicated targets to demonstrate STSS capabilities. Knowledge point-based lessons learned from these demonstrations will guide our decisions on the development of an affordable, continuously available operational precision track space sensor constellation.

The Near Field Infrared Experiment (NFIRE) satellite launched in April 2007 continues to operate in good health. We conducted NFIRE test mission 2B

in September 2008 to collect first-of-a-kind high resolution plume and hard body data of a boosting missile at approximately 8 km range from a boosting missile. In this test, we collected multiple frames of data in multiple wavebands, which will help anchor plume to hard body handover algorithms for boost phase intercept applications. We continue to collect data on other targets of opportunity. We also demonstrated very high capacity laser communications on board the NFIRE satellites.

Our boost phase intercept technologies include the Airborne Laser (ABL) and Net Centric Airborne Defense Element (NCADE) technology programs. We are requesting $187 million for FY 2010 to further develop these technologies. In FY 2008 we verified ABL can acquire, track, and perform atmospheric compensation in flight against a non-cooperative target and completed installation of the high power laser on the aircraft. We achieved first light through the Beam Control/Fire Control and successfully fired the complete high energy laser weapon system from the aircraft on the ground in November 2008. Earlier this month, we tracked and demonstrated laser beam atmospheric compensation against a boosting target for the first time. While we will cancel the planning for Tail #2 aircraft, we will maintain Tail #1 and continue ABL research and development to address many of the program's affordability, technical, and operational challenges. We are focusing the ABL program on achieving repeated shoot-downs of missiles in their boost phase in FY 2010. We are requesting funding for two follow-on lethal shoot-down flight test campaigns in the first half of FY 2010, retaining

critical skills needed for optics and fire control, and continuing test flights. If there are problems with the lethal shoot-downs, we are prepared to de-commission the Tail #1 aircraft. Additionally, we addressed an optics contamination issue which delayed the return to flight, but we currently flying a fully integrated ABL today and are on track for a shoot-down of a ballistic missile later in 2009.

In 2008 we also demonstrated the NCADE, a promising air-launch missile defense concept that uses a modified AIM-9X seeker to intercept a boosting missile target. Plume-to-hard body aim point transition was completed, and sensors on-board an F-15 aircraft successfully detected, acquired, and tracked three stages of a boosting missile. We are requesting $3.5 million for FY 2010 for continued work on NCADE technologies and to study the concept further.

Terminated Program Activities

We are terminating two technology programs, the Multiple Kill Vehicle (MKV) program and the Kinetic Energy Interceptor (KEI) program, which do not match our strategy of focusing on near-term, rogue state, and theater missile threats. We are reviewing both programs to assess their contribution to follow-on early intercept capabilities and other R&D efforts to contribute to our "hedge" against future threats. The MKV technology program was established for integration onto midcourse interceptors to address complex countermeasures by identifying and destroying all lethal objects in a cluster using a single interceptor. Instead, we are now assessing the feasibility of destroying threat missiles early in

flight to reduce the effectiveness of countermeasures as a hedge against advanced future threats. The KEI mission was to counter advanced missile defense threats and is inconsistent with the Secretary of Defense's FY10 budget guidance to focus missile defense development on rogue and theater missile threats. Also, KEI's size limits its ability to be operationally deployed without dramatic and costly changes to our military infrastructure and a significant reduction in firepower. The original KEI mission grew from a boost phase only mission to a boost and mid-course mission. The development schedule grew from 5 1/2 years to 12 to 14 years (depending on spirals), program cost grew from $4.6B to $8.9B, and the missile average unit production cost grew from $25M to over $50M per interceptor. Technical issues delayed the first booster flight test date (established in 2007) by over a year. The contractor indicated they could complete their flight test by the end of September 2009 in a manner that accommodates our legal liabilities for program termination. However, I have reviewed their proposal, found it insufficiently substantiated, and determined the contractor's proposed flight test schedule is high risk and not affordable given FY 2009 funding. Furthermore, since the KEI test was a "proof of concept" demonstration only, few of the components flown in the September test would actually be part of the objective missile design. Affordability and government requirements growth, not contractor performance, was the main contributor to KEI's execution problems. Given the above and that 15% of the $8.9B worth of work on contract till 2018 has been accomplished, the KEI program was terminated.

BMDS Contingency Deployments

Due to the limited integrated missile defense capability fielded today, developmental elements of the BMDS have been deployed on a contingency basis at the request of Combatant Commanders and the Joint Staff. USSTRATCOM provides the requesting Combatant Commander an assessment of the capabilities and limitations of the requested capabilities based on test information collected at the time of the Combatant Commander's request. Contingency deployments directed by the Joint Staff usually require MDA to alter affected development programs' budget execution plans and schedules. An example is the unplanned deployment of the AN/TPY-2 X-band radar to Israel in August 2008 to bolster Israel's regional ballistic missile defense capabilities at a cost of over $80 million. Additionally, we spent analytical and test resources supporting the Department's plans to provide options for dealing with any contingency associated with the recent launch of a Space Launch Vehicle from North Korea.

The February 2008 satellite-shoot down is another example of how the Department has leveraged MDA's expertise and products to respond to contingencies. The impact to the Aegis BMD program was a 3-month delay at a cost of $112 million to MDA. While the funding was subsequently reimbursed to MDA, the schedule delays were not recoverable.

U.S.-Israeli Cooperative Programs

We are requesting $120 million in FY 2010 for U.S.-Israeli cooperative missile defense efforts. The United States and Israel have cooperated on missile defense for over twenty years. Collaboration has grown from early feasibility studies to the development and employment of the Arrow Weapon System, a fully-operational missile defense architecture that is interoperable with U.S. BMDS elements. New joint programs have advanced this cooperation: U.S. and Israeli industrial co-production of Arrow interceptors; the joint Short Range Ballistic Missile Defense Program's David's Sling Weapon System; and an initiative to provide Israel an upper-tier defense system.

The upcoming year will include several significant events that will demonstrate combined U.S. and Israeli missile defense capabilities. Israel conducted the first intercept test of the enhanced and co-produced Arrow-2 in April 2009, successfully acquiring, tracking, and intercepting a separating target. AN/TPY-2 and C2BMC sent cueing data on the target to the Arrow Weapon System. The Juniper Cobra exercise between European Command (EUCOM) and the Israeli Defense Forces to be held later in 2009 will be the fifth and most complex exercise yet designed. U.S. BMDS elements will participate in these exercises to demonstrate the interoperability and develop operational tactics, techniques and procedures associated with this coalition architecture.

MDA and Israel are also jointly developing the David's Sling Weapon System to defend against shorter range threats, to include some ranges that the

PAC-3 system cannot engage. The first booster fly-out was successfully conducted in February 2009, with additional interceptor fly-outs scheduled later this year. The first intercept test is scheduled to occur in 2010. Additionally, MDA is coordinating with the U.S. Services to identify opportunities for U.S. utilization of the David's Sling Stunner interceptor.

Finally, the United States and Israel have initiated development of an upper-tier component to the Israeli Missile Defense architecture. An Analysis of Alternatives of a land-based SM-3 and a new Arrow 3 missile indicated that the Arrow 3 alternative may have a reduced 30 year life cycle cost and potentially better performance to meet Israel's requirements, but was also deemed to have very high schedule and technical risk to meet the Israeli proposed need date. We have proposed FY 2010 funding for the Israeli upper tier project that is consistent with historically authorized and appropriated funding levels and are coordinating an agreement that contains knowledge points to measure progress and joint U.S.-Israeli management responsibility. To mitigate the Arrow 3 development schedule risk, we are ensuring that the development of a land-based variant of the proven Aegis SM-3 missile is available to meet Israel's upper tier requirements.

European IRBM and ICBM Defense Capability

We remain committed to working with our NATO partners to address the growing threat from ballistic missiles. In the summit declaration issued on April 4, 2009, all NATO Heads of State and Government reaffirmed the conclusions of the

Bucharest Summit, that "(b)allistic missile proliferation poses an increasing threat to Allies' forces, territory, and populations. Missile defence forms part of a broader response to counter this threat." As part of this response, NATO agreed that "a future United States' contribution of important architectural elements could enhance NATO elaboration of this Alliance effort." The Department has previously proposed to field sensors, interceptors, communications, and the C2BMC infrastructure needed to improve protection of the United States and, for the first time, with the United Kingdom and Denmark, extend upper-tier, ICBM and IRBM, defense coverage to all European NATO allies vulnerable to long-range ballistic missile attack from the Middle East. The NATO Active Layer Theater Missile Defense (ALTBMD) program will develop the lower-tier, MRBM and SRBM, defense necessary for complete defense of NATO against all missiles of all ranges launched from the Middle East. We will continue to work closely with our NATO allies, and we will continue to assess potential missile defense architectures for optimum effectiveness.

International Cooperative BMD Activities

As stated at the April 2009 NATO Summit, missile defense is part of the broader response to ballistic missile proliferation. The global proliferation of MRBMs and IRBMs warrants an international coalition approach to deter further acquisition of these offensive missiles. Therefore, under the guidance of Office of the Secretary of Defense, MDA works closely with Combatant Commanders,

the U.S. Department of State, and other government agencies to support their missions and goals. As a result, MDA has significant cooperative missile defense technology development efforts, including six "framework" agreements, signed by the Secretary of Defense, to facilitate BMD cooperative research with Japan, the United Kingdom, Australia, Denmark, Italy, and, most recently, the Czech Republic. Cooperative activities are under consideration with several other nations.

With the purchase of Aegis BMD and PAC-3 assets, Japan is fielding a multilayered system that is capable of being interoperable with the U.S. system. Japan's C2BMC (JADGE) system will integrate Japanese BMD sensors and interceptors and will be capable of exchanging information with U.S. missile defenses, including the forward-based X-band radar at Shariki and U.S. Aegis BMD ships in the region. The X-band radar at Shariki provides precise early detection and tracking to increase the probability we will destroy any lethal target launched by North Korea.

MDA's C2BMC will continue leading the integration of the BMDS with NATO command and control. In November 2008 and January 2009, we completed initial tests confirming integration between the NATO Active Layered Theater BMD program office and our C2BMC.

MDA continues to support Administration efforts to propose transparency and confidence-building measures, technology development programs, and missile defense architectures to collaborate with the Russian government. I visited the

Russian radar at Gabala, Azerbaijan in 2007 and personally assessed its valued contribution to U.S. and NATO missile defense efforts. Recently, I discussed in Moscow potential areas of missile defense collaboration with representatives of the Russian government, including high energy lasers, collaborative testing, and information-sharing initiatives such as the Joint Data Exchange Center. We remain engaged with the Russians to ensure we take every opportunity to develop U.S.-Russian missile defenses.

Enhancing Oversight of MDA and Collaboration with the Services and War Fighters

As our missile defense development processes have matured, the Department has taken several significant steps to enhance accountability for MDA decision making and oversight by senior Department of Defense officials in collaboration with Combatant Commands and the Services. The Weapon Systems Acquisition Reform Act of 2009 (Section 201) directs oversight to consider program and requirements trade-offs for cost, schedule and performance. The Missile Defense Executive Board (MDEB) was established by the Deputy Secretary of Defense and is chaired by the Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L) to provide guidance and oversight of U.S. missile defense activities. The MDEB is comprised of the following members: Assistant Secretary of State for International Security and Nonproliferation; Under Secretary of Defense for Policy; Under Secretary of Defense for Intelligence; Vice Chairman, Joint

Chiefs of Staff; Commander, U.S. Strategic Command; Director of Operational Test & Evaluation (DOT&E); Director of Defense Research & Engineering; Vice Chief of Naval Operations; Assistant Secretary of the Army for Acquisition, Logistics and Technology; Deputy Under Secretary of the Air Force for Space Programs; Director of Program Analysis & Evaluation; and Director, Missile Defense Agency. The MDEB meets bi-monthly to review program progress, inform missile defense budget decisions, conduct missile defense development portfolio trades, and provide guidance to MDA.

In September 2008, the Deputy Secretary of Defense established "business rules" that outline the transition and transfer of missile defense capabilities between the Missile Defense Agency and the Services. These rules designate that "transition" of an element of the BMDS begins when the Deputy Secretary of Defense designates a "lead Service" to ultimately receive that capability through formal transfer. MDA is responsible for the development, manufacturing and testing for the lifecycle of BMDS elements, and the Services are responsible for developing the doctrine, organizations, training, logistics, personnel and facilities to effectively field and operate the element sub-systems of the BMDS. Once the MDEB concurs that transfer criteria, approved by the Deputy Secretary of Defense, have been met, the physical accountability and control of missile defense units, operations and support, and infrastructure responsibilities transfer to the lead Service. Research, development, manufacturing, and testing activities remain the responsibility of MDA after a BMDS element capability has been transferred to a

lead Service. Accordingly, "hybrid" program offices, comprised of a MDA component working with a Service component reporting to MDA and the lead Services, respectively, will be formed to execute this division of responsibility once a lead Service has been designated for a BMDS element.

In support of the MDEB as the COCOM advocate for missile defense, USSTRATCOM, in collaboration with the other Combatant Commands, Joint Staff, and the Services, assesses and prioritizes the development of future missile defense capabilities. As previously stated, USSTRATCOM also performs Military Utility Assessments (MUAs) to determine the capabilities and limitations of our systems under development when they are considered for contingency deployments by the Combatant Commanders.

Meeting the challenges of countering the proliferation of ballistic missiles requires the participation of missile defense assets in all our Services, thus developing and deploying the BMDS is inherently a joint endeavor. The Deputy Secretary of Defense's transition and transfer business rules define the roles and responsibilities of developing and fielding missile defense capabilities. Accordingly, the Services and MDA have begun developing Memorandums of Agreements (MOAs) to define the management and interrelationship of MDA's research, development, testing and manufacturing responsibilities and align them with the Services' Title 10 Operations and Support responsibilities. The Secretary of the Army and I signed an "overarching" Army/MDA Transition and Transfer MOA on January 21, 2009, and drafts of the Navy and Air Force MOAs are being

coordinated by their respective staffs. A key aspect of the MDA/Service MOAs is the establishment of MDA/Service Boards of Directors to collaboratively review cooperative development, resolve issues associated with the development and fielding of the Service designated BMDS elements, and raise unresolved issues to the MDEB.

Improving Acquisition of the BMDS

As we strive to make the BMDS more affordable and effective, MDA is implementing the direction of the Acquisition Reform Act of 2009. This includes: an increased emphasis on standard contract constructs that fosters competitive contracting to motivate innovation and keep costs down, increased emphasis on government ownership of Intellectual Property supporting weapon system development, and the establishment of acquisition milestones to ensure compliance with policies and employ contract constructs to ensure appropriate competitive acquisition strategies.

Acquisition Oversight. As the development of missile defenses matures, the Department has engaged in MDA's acquisition oversight process to ensure optimum weapon system transition to the Services receiving this capability. As I continue as the Acquisition Executive for the initial phases of missile defense concept through initial production and test, I am implementing milestone review and baseline reporting processes that are closely aligned with the principles of DoDI 5000. We will rely on the MDEB process to oversee the implementation of this approach.

Under my authority as the missile defense acquisition authority prior to initial production, potential programs that may provide technological or material solutions we need will undergo a milestone "A" decision to determine if they should become a program. These technology-based programs will be managed by knowledge points and incubated until maturity, at which time MDA along with the Service Acquisition Executive will be able to make a milestone “B” decision as to whether they should be converted to a development program. The Under Secretary (AT&L) makes a milestone “C” decision.

Enhancing System Engineering. The key to the effective and efficient management of the acquisition of a large, technically complex enterprise, such as the missile defense program, is the establishment of management baselines resulting from a disciplined systems engineering process. MDA manages its programs via resource, schedule, operational, technical, contract and test baselines. To strengthen the systems engineering process to create, manage and implement those baselines, MDA designated a senior executive position (designated the “Director for Engineering”) to establish engineering policy, ensure the disciplined practice of systems engineering fundamentals, and develop the systems engineering competencies of the missile defense workforce. The Director for Engineering at MDA has been implementing Section 102 of the Acquisition Reform Act of 2009. He oversees a number of system engineering activities, to include the career development of an engineering cadre that focuses on leveraging national expertise to assist MDA program managers in the cost, schedule, performance, and risk trades

inherent in the development of executable baselines. Additionally, we created engineering "Knowledge Centers" (for Interceptor, C2BMC, Sensor, and Space application disciplines), staffed by highly qualified senior engineers from Federally Funded Research and Development Centers (FFRDCs), academia, Government Laboratories, and industry, to mentor and foster the practical application of missile defense engineering competencies and technical problem-solving skills across the MDA workforce. Finally, to ensure the future health of MDA's engineering workforce, we have dramatically increased the number of recent engineering school graduates inducted into our two-year Career Development Program from 6 to 60 students per semester in order to sustain a population of over 200 entry level government engineers being mentored as they enter the MDA workforce.

Technology Maturity Assessments. To ensure the risk of technology insertion is well understood prior to advanced system development, we set specific knowledge points when sufficient data or knowledge is obtained from discrete events (typically the completion of a major test campaign) to make decisions on the readiness of development efforts to continue on their current plans. MDA's risk-based knowledge points directly implement Section 104 of the Acquisition Reform Act, which requires technology maturity and risk be assessed at critical program junctures. This approach enables us to assign Technology Readiness Levels (TRLs) that support programmatic decisions based upon the proven maturity of a technology under consideration.

Developmental Testing. While the benefit of early operational input to the development of missile defense systems is clear, premature entry into operational development and testing (i.e., before the design and configuration has been stabilized and basic technical concepts have been validated) risks expensive repetition of non-recurring engineering and operational development. As the Acquisition Reform Act of 2009 (Section 102) directs enhanced focus on solid developmental testing, MDA is enforcing rigorous developmental test to mitigate risk prior to operational assessments. We are doing this by transitioning from "architecture-based" test objectives to "technical parameter-based" objectives identified early in a program to anchor models and simulations (M&S). These M&S will estimate performance characteristics and cost-effectively demonstrate the impact of technical risk mitigation prior to committing to full acquisition development of a capability.

Independent Cost Assessments. Consistent with Section 101 of the Acquisition Reform Act of 2009, MDA and the Services are establishing agreements to collaboratively develop high fidelity cost estimates, and we have invited the OSD Cost Analysis Improvement Group (CAIG) to independently assess the assumptions, product description, cost estimating relationships, and methodologies as cost estimates are developed. These cost estimates will be the basis of system engineering trades and programmatic decisions at all levels.

Working with Combatant Commanders. In accordance with the 2008 Unified Command Plan, USSTRATCOM systematically assesses and establishes

the priorities for developing and fielding BMDS capabilities. This biannual Warfighter Involvement Process (WIP) involves all Combatant Commands and the Services and produces a Prioritized Capability List (PCL) of desired missile defense capabilities. Although this product is developed once every two years, the MDEB and the Joint Staff (J-8) review BMDS development priorities and progress on a frequent basis. Working with OSD, government laboratories, and industry, MDA responds to the PCL with an assessment (called the Achievable Capabilities List) of the technical and schedule risks and programmatic feasibility of delivering the requested capabilities in the timeframe specified. USSTRATCOM, as a member of MDA's program control board that manages the configuration of MDA's programmatic and operational baselines, then rates the degree to which the ACL satisfies the PCL in the Capability Assessment Report (CAR). The CAR forms the rationale and justification for MDA's annual budget submission.

USSTRATCOM used MDA's 2008 ACL and other studies, war games and exercises to develop the CAR delivered in April 2009, which covers the timeframes through 2015. The CAR connects Combatant Command priorities with actual MDA development activities and allows for an assessment of overall missile defense development trends. This process directly supports Section 105 of the Acquisition Reform Act requiring input from Combatant Commanders and ensures a comprehensive and accurate description of the Combatant Commander's needs and the responsiveness of OSD and MDA to meeting those needs. In no

case did the war fighter assess that progress toward achieving desired capabilities is unsatisfactory.

Cost, Schedule and Performance Trades. Missile defense cost, schedule and performance trade-offs, below the level of the Deputy Secretary of Defense, are executed at the MDEB. If there are major variances in program baselines resulting from, for example, new policy guidance, real world contingencies involving deployments of missile defense assets, or significant changes in cost or development schedule, MDA brings those changes, to include options, impacts, and trade proposals, before the MDEB for review and decision. MDA uses Earned Value Management (EVM), as directed by Section 302 of the Acquisition Reform Act of 2009, in collaboration with the Defense Contract Command (and validated by joint MDA/DCMA Integrated Baseline Reviews), to ensure contractor cost, schedule and performance execution is rigorously implemented to rapidly identify program execution issues to expedite resolution. Additionally, knowledge points and definitive test assessments complement EVM to provide early insight into program progress. Execution issues, opportunities, and scope, specification and schedule trades are proposed to the MDEB on an as-needed basis to ensure senior DoD officials program expectations are met.

Preliminary Design Review. It is MDA policy to structure contracts using a framework of incremental knowledge points that provide insight into the achievement of meeting contract objectives. Evaluations of these knowledge points are conducted at Critical Design Reviews and Preliminary Design Reviews

(PDRs). Knowledge points form the basis for entrance criteria for PDRs, where we assess to what extent technologies are mature enough for achieving BMDS-required capabilities. PDRs ultimately support critical investment decisions.

Life-Cycle Competition. Consistent with Section 202 of the Acquisition Reform Act of 2009, MDA is standardizing contracting methodologies to remove impediments to the program's life-cycle competitive contracting through a construct that: 1) ensures appropriate government rights to use contractor intellectual property and ensures the use of government-funded intellectual property; 2) ensures all government-funded infrastructure is transferable and fully documented; and 3) prohibits exclusive teaming arrangements where appropriate, ensuring the use of only highly qualified suppliers. We are ensuring the government has root control over the management of our development programs thereby eliminating Prime contractors as Lead System Integrators. Every opportunity to foster open competition will be pursued for all phases of missile defense programs.

Baselines. We recognize the need to incorporate the tenets of DoD 5000 to ensure programs are affordable, justified by the war fighter, and demonstrate acceptable risk through a milestone review process overseen by the MDEB. Also, we are segregating the management of our technology and development programs. We will be establishing baselines for our development programs. Managing by these cost, schedule and performance baselines will allow us to anticipate potential baseline variances and allow us to satisfy Secton 204 of the Acquisition Reform Act of 2009.

Organizational Conflict of Interest. As directed by the Acquisition Reform Act (Section 206), MDA strives to prevent Organizational Conflict of Interest (OCI) by rigorously applying prohibition of contracting for inherently governmental functions in the transition to new consolidated services contracts, prohibiting developmental contractors from participating in the requirements process, and tightening oversight of potential organizational conflicts involving our system engineers and support contractors. In compliance with Secretary of Defense direction, we are looking for opportunities to transition support contractors to government positions, thus reducing OCI concerns.

Acquisition Excellence. Implementation of a functional management construct (where the MDA acquisition workforce is assigned to functional areas rather than projects) has resulted in greater focus on our human capital development at the enterprise workforce level and implements parts of Section 102 of the Acquisition Reform Act of 2009 to develop the acquisition workforce. Our functional managers maintain a broad focus on career development and education of acquisition professionals rather than a narrow focus on enhancing skills for current job performance. This often involves transferring personnel between assignments every few years to challenge them with new opportunities, education, and give them a greater acquisition experience base over their careers. In the functional acquisition area alone, over twenty very senior program managers or acquisition career field specialists have been moved between programs, bringing with them expertise, knowledge and a fresh focus. We seek to reward excellence with greater

opportunities for career development and greater responsibilities as well as personal and team recognition for outstanding performance as outlined in Section 301 of the Acquisition Reform Act of 2009.

Contract Management and Oversight. MDA has expanded our partnership with the Defense Contracting Management Agency (DCMA). For example, we have recently requested that DCMA provide: an independent review of the cost growth in our GMD intercept flight tests; an assessment of our supply chain vendor viability and compliance with best industry practices; a certification in preparation for contract re-competition activities; and an independent assessment of GMD EKV failures (including a validation that a EKV recently submitted to extensive over-testing is viable and ready for use). Finally, we are assessing how we can benefit from DCMA's risk management best practices.

MDA Contract Cost Overruns

In a March 2009 report, the Government Accountability Office (GAO) noted that 11 of 14 MDA contractors overran their FY 2008 budgeted costs by $152 million, or 3.7 percent. STSS accounted for more than 50 percent of the $152 million FY 2008 overrun. Technical issues caused most of the overruns seen with STSS. The GAO report also noted that Aegis BMD (SM-3 interceptor deliveries), the GMD prime, and MKV (engagement management algorithm development) performed their FY 2008 scope of work under budget. Since current BMDS contracts were initiated, we have had 31 contract realignments,

adding nearly $14 billion to the value of the contracts. MDA realigns contracts as required to accurately reflect contract changes, technical redirection, contractor internal replanning, and the impacts of program funding changes. Our contractors' Earned Value Management (EVM) Systems require them to update the Integrated Master Schedule and related Performance Measurement Baseline (PMB) in a timely manner to reflect an accurately planned program after programmatic decisions have been made. This helps to ensure cost metrics are realistic and used to understand cost trends, causes, and impacts, which in turn helps to ensure continuous management and minimization of cost growth.

As of December 2008, MDA had a $37 billion contract budget base allocated to current MDA prime contracts, initiated between 1996 and 2009. With 71 percent of that contract work having been completed, we are estimating a total overrun of $2.1 billion or about 6 percent. We will continue to conduct a rigorous Integrated Baseline Review process with our contractors to help ensure we have executable programs and use EVM to effectively manage cost, schedule, and technical performance. Our cost overruns have been accommodated and addressed within the overall FY 2008 and FY 2009 MDA budget.

MDA and Mission Assurance. During the 1990s and early part of this decade, we painfully learned that missile defense systems have very little tolerance for quality control errors, as we experienced a number of flight test failures. Out of necessity, MDA nurtured a culture of mission assurance within the Agency and within the missile defense industry. Today, quality control and mission assurance

remain the Agency's highest priority. The Agency performs routine mission assurance evaluations and has permanent Mission Assurance Representatives at several sites.

I am concerned with lapses in quality management involving several of our industry partners that have impacted system element cost, schedule, and performance. There have been frequent schedule slips on the STSS program, some resulting in significant delays, due to quality issues caused by lack of discipline and detail in the procedures. Similarly, we have recently suffered over 50 days of manufacturing delays due to a lack of discipline during EKV assembly and testing. There are many other examples over the past year. We are working closely with DCMA to hold our industry partners accountable and sufficiently improve contractor execution of quality control in their manufacturing facilities.

Improving BMD Test Planning

We are requesting $967 million in FY 2010 for test and targets compared to the $912 million appropriated for FY 2009. Our commitment is to prove, through comprehensive testing, that the ballistic missile defense system works. Evaluating the BMDS is likely one of the most challenging test endeavors ever attempted by the Department of Defense. Ideally, comprehensive and rigorous testing is enabled by a stable configuration of the system being tested; a clearly defined threat; a consistent and mature operational doctrine; sufficient resources to repeat tests under the most stressing conditions; and a well-defined set of criteria of acceptable

performance. Unfortunately, none of these situations applies to the BMDS. The hardware and software configurations of the BMDS frequently change since the system elements are still under development. There are many significant uncertainties surrounding the nature and specifics of the ballistic missile defense threat. Moreover, the operational doctrine for simultaneous theater, regional, and homeland defense is immature. Finally, costs range between $40 million to over $200 million per BMDS flight test, making the repetition of a complex flight tests cost-prohibitive.

In light of these challenges, the BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all combinations of BMDS configurations, engagement conditions, and target phenomena. We are changing from an architecture-based goal approach to a parameters-based test-objectives approach. The focus of the on-going BMDS test review has been to determine how to validate our models and simulations so that our war fighting commanders have confidence in the predicted performance of the BMDS, especially when those commanders consider employing the BMDS in ways other than originally planned or against threats unknown at this time.

In Phase I of the test review, MDA and the multi-Service Operational Test Agency (OTA) Team studied the BMDS models and simulations and determined the variables (key factors) most sensitive to the predicted results. The OTAs and

MDA then combined sets of key factors with test conditions that provide the greatest insight into the BMDS models' predictive capability, when compared to test results, and called them Critical Engagement Conditions (CECs). However, there are many cases where the only practical way to measure, rather than simulate, performance is by ground or flight testing under operationally realistic conditions. OTAs and MDA call these tests Empirical Measurement Events (EMEs). Much of the data needed for the OTA Critical Operational Issues (COIs), such as survivability, reliability, performance in extreme natural environments, and supportability, can only be collected through the conduct of EMEs. MDA then combined the CECs, EMEs, and COIs into test objectives. Phase I identified the need to collect data for 101 CECs and EMEs in order to accredit the BMDS models and simulations and facilitate comprehensive operational assessments.

In Phase II, the OTAs and MDA combined these critical test objectives and selected 144 test scenarios, including 56 flight tests involving 37 tests where threat targets are intercepted. These test objectives not only address data necessary to validate the models of individual missile defense interceptor systems, but also demonstrate the performance of the BMDS working as an integrated system. The OTAs and MDA prioritized the resulting test scenarios according to the need to determine BMDS capabilities and limitations and the Combatant Commanders' urgency of need for a specific missile defense capability.

In Phase III, MDA identified the funding and infrastructure (including targets, interceptors, ranges, instrumentation, and personnel) needed to implement

the test events designed in the second phase. In FY 2010 and FY 2011 available targets (either on contract or available within the current acquisition strategy) and available test infrastructure were a key driver in the revised test schedule. For example, one of our high priority test events is to conduct a GBI intercept with a high closing velocity, but the target to support that engagement will not be available until FY 2013. In FY 2011 and beyond, our ability to establish an inventory of reliable target configurations to satisfy test objectives over a variety of BMDS flight tests will be a key cost driver. Throughout the process of sequencing and resourcing the test program, MDA has considered the OTA and war fighter priorities.

At the conclusion of the three-phase test plan review, the OTAs and MDA will produce, with full involvement by DOT&E and STRATCOM JFCC-IMD, an Integrated Master Test Plan (IMTP) that is event-oriented and extends until the collection of all identified data is completed to ensure adequate test investments. We are still working to fully assess infrastructure and affordability and are on track to sign the IMTP by June 30, 2009.

I want to assure you that MDA is focused on conducting meaningful ballistic missile testing that rigorously demonstrates the capabilities of the BMDS. Executing our testing program in accordance with our testing schedule as established in the IMTP is one of our highest priorities. Due to the increasing complexity of our test program, we may encounter technical issues in the future that may necessitate a delay in testing. When these issues become apparent, you have

my personal commitment that MDA will consult with USD/AT&L, DOT&E and the Operational Test Agencies before deciding to delay or cancel a ballistic missile defense test. Finally, in order to ensure our government and industry teams are not incentivized to avoid operationally realistic testing, I have directed we stop the practice of using award fee associated with flight test results. Instead, we will incentivize quality control in the manufacture of our hardware and software.

Ballistic Missile Targets

The Missile Defense Agency is fundamentally overhauling the target acquisition program to: 1) match the pace and increasing complexity of BMDS testing; 2) shorten the lead-time to contract, build, and deliver targets; 3) improve target program management; 4) improve target reliability; 5) reduce and control target program costs; and, 6) represent BMDS responses to dynamic intelligence and assure threat realism through a combination of flight test targets that represent basic target characteristics, ground tests, hardware-in-the-loop, simulations, and Foreign Material Acquisitions to provide high-fidelity representations.

In FY 2008 and FY 2009 to date, we launched 18 targets with four failures. Unfortunately, those failures had significant negative impacts on demonstrating key capabilities for both GMD and THAAD. We had two failures of the STARS target, which we will no longer be launching. Another failure was a foreign made target, and we have determined root cause and corrected that problem for the most recent THAAD test.

Target failures impacting our test schedules have driven us to adopt a new approach to acquiring targets. First, we have issued a Request for Information from industry to identify all potential sources of targets. After an assessment, we will determine if a competitive acquisition strategy would improve target cost, schedule, and performance issues. Second, we are standardizing target requirements based on intelligence data to emphasize the fundamental characteristics of each of the four target classes (SRBM, MRBM, IRBM, and ICBM). This will allow the Agency to economically purchase greater quantities of basic threat representative targets. Third, to mitigate the likelihood that target failures will have a severe impact on our flight tests and development programs, we are implementing a "rolling spare" concept by building a target contingency inventory.

We began the "Flexible Target Family" (FTF) program in December 2003 to develop a single set of targets with common components that can be tailored to simulate known or potential short-, medium-, or long-range threats. Emphasis on common components and inventory buys down lead times for new missions and facilitates the quick tailoring of missions when needed.

Unfortunately, the FTF program has not met cost and schedule expectations to date. High costs and changes in target requirements led to the discontinuation of all variants except the 72-inch-diameter LV-2. Late production qualifications and environmental impact concerns has delayed the initial launch of the first long-range (72-inch) target until fourth quarter FY 2009. The 72-inch target, which is

based on the newer Trident C4 motor, completed qualification testing in December 2008 in extremely rigorous environments.

Funding improvements also will help increase the quantity of targets available for testing. We have adopted a common cost model to help adjust out-year funding requirements with improved accuracy. With the FY 2009 Defense Appropriations Act, we transferred target funding from other program elements to a Test and Targets Program Element and were provided an additional $32 million for FTF to initiate an inventory build up of critical long-lead hardware items.

MDA Personnel/BRAC

The 2005 Defense Base Realignment and Closure (BRAC) Commission approved recommendations directing the realignment of several MDA functions from the National Capital Region (NCR) to government facilities at Fort Belvoir, Virginia, and the Redstone Arsenal in Huntsville, Alabama. Specifically, a Headquarters Command Center (HQCC) for MDA will be located at Fort Belvoir, while most other MDA mission and mission support activities originally in the NCR will be realigned to Redstone Arsenal.

In support of these realignments, MDA has awarded contracts to construct two new facilities: a $38.5 million Headquarters Command Center (HQCC) at Fort Belvoir, and a $221 million addition to the Von Braun Complex at Redstone Arsenal. Construction of the HQCC will begin this spring, with expected completion and occupancy in Fall 2010. The HQCC will accommodate 292

positions. Construction of the Von Braun III project is already underway. The Von Braun III facility is being constructed in two phases – with the first phase being readied for occupancy in the summer of 2010, and the second phase scheduled for completion and occupancy in the summer of 2011. The transfer of government and contractor positions from the NCR is in progress. MDA has already transitioned approximately 1,300 of the planned 2,248 positions to Huntsville / Redstone Arsenal. We are currently reassessing our facility needs in Huntsville given the anticipated expansion of our government acquisition workforce and the Secretary of Defense's PB10 guidance.

Conclusion

Our plans for the development and fielding of a more effective and affordable missile defense system will have implications for our entire national security strategic posture. According to the Strategic Posture Commission, "(m)issile defenses can play a useful role in supporting the basic objectives of deterrence, broadly defined. Defenses that are effective against regional aggressors are a valuable component of the U.S. strategic posture."[2] Proven missile defenses can enhance protection by dissuading potential adversaries from acquiring them, deterring against their use, and defending against a ballistic missile attack. Proven missile defense assets can contribute to strategic non-proliferation and counter-proliferation objectives by undercutting the value of offensive ballistic missiles and

[2] William J. Perry and James R. Schlesinger, *America's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States*, May 2009, http://media.usip.org/reports/strat_posture_report.pdf, p. xvii,

dissuading foreign investment in them. Deployed missile defenses can bolster deterrence and give confidence to our allies and friends by reducing opportunities for adversarial intimidation or coercion and creating uncertainty in the minds of the potential adversaries of the effectiveness of an attack on U.S. or allied retaliatory military power. A robust research and development program focused on early intercept can provide a significant "hedge" against advanced threats. If hostilities break out, missile defenses can limit damage to U.S. and allied critical infrastructure, population centers, and military capabilities for responsive operations.

The FY 2010 missile defense budget was the result of a comprehensive assessment of available and reasonably achievable capabilities, war fighter requirements, and development risks. It also provides a hedge against future uncertainty. With the $7.8 billion requested, MDA will implement a program strategy to improve the effectiveness and efficiency of developing the BMDS. While we are addressing challenges, our record of 16 of 18 successful intercept attempts over the past three years sends a clear message to potential adversaries considering the acquisition of ballistic missiles. But more work is needed to improve our oversight, collaboration with Combat Commanders and the Services, test planning, and program execution.

Missile defense is expensive, but the cost of mission failure can also be very high – the system must be affordable and effective. Integration of stand-alone missile defense systems into an integrated BMDS helps us achieve cost and

operational efficiencies by improving protection with increased defended area and performance without incurring additional force structure costs. The Department is proposing a balanced program to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, maintain our limited ICBM defense, develop new technologies to address future risks, and become more operationally and cost-effective as we prepare to protect against the more uncertain threats of the future.

I greatly appreciate your support as we address issues associated with the BMDS, and I look forward to answering your questions.