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**Missile Defense Program and Fiscal Year 2009 Budget**  
**Before the**  
**Senate Armed Services Committee**  
**Subcommittee on Strategic Forces**  
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Good afternoon, Mr. Chairman, Senator Sessions, distinguished Members of the Committee. Thank you for this opportunity to discuss the Department of Defense's Fiscal Year (FY) 2009 Missile Defense program and budget. As Director of the Missile Defense Agency (MDA), I have the privilege of leading an outstanding group of men and women who are working hard every day to develop, test and field an integrated, layered ballistic missile defense system to defend the United States, our deployed forces, and our allies and friends against ballistic missiles of all ranges in all phases of their flight. I want to thank this Committee for the support we have received for this critical defense program.

We are requesting \$9.3 billion in FY 2009 for missile defense. Roughly 75 percent of this request, or \$7 billion, will be allocated to the near-term development and fielding of missile defense capabilities. Of this amount, \$715 million is for sustaining the capabilities we already have in the field today. I also want to highlight that, as has been the pattern for several years now, we will be spending about \$2 billion of the funding in FY 2009 (more than 20 percent of the missile defense budget) on test activities.

The Ballistic Missile Defense System (BMDS) is daily becoming more integrated, robust, and global. The BMDS already includes fielded assets operated by Air Force, Army, and Navy units under the integrated control of Combatant Commanders. Our current, limited homeland defense against long-range ballistic missiles will soon be

bolstered by additional interceptors in Alaska and the upgrade of an existing radar in Greenland to protect against enemy launches from the Middle East.

The defense of deployed forces, allies, and friends against short- to medium-range ballistic missiles in one region/theater will be buttressed by additional Standard Missile (SM)-3 interceptors, more Aegis BMD engagement-capable warships, two Terminal High Altitude Area Defense (THAAD) fire units, and up to 100 modified sea-based terminal interceptors. Tying these assets together will be a global command, control, battle management and communications capability.

Recent flight tests are confirming technological progress and operational effectiveness for short-, medium-, and long-range defensive capabilities. Since February 2007, MDA and the military services have executed a successful long-range ground-based intercept, six sea-based intercepts of separating and unitary targets, and two THAAD intercepts of unitary targets. In the near future, MDA's capability development program is expected to yield enhanced capabilities to discriminate between enemy warheads and countermeasures and options for "multiple kill" capabilities to meet future challenges.

To demonstrate the long-range BMDS capability, for example, we conducted an integrated flight test last September involving a realistic target launched from Alaska and tracked by the operational upgraded early warning radar in northern California. An Aegis ship and the sea-based X-band radar in the North Pacific tracked the target as well. The target was successfully destroyed by a Ground-Based Interceptor (GBI) launched from an operationally configured silo in central California. The data needed to calculate a fire

control solution for the interceptor was provided by the operational system and the operational command and control, battle management and communications system was employed by the warfighting commanders. Overall, this single test included numerous components separated by thousands of miles and managed by four executing organizations within the Missile Defense Agency.

As missile defense capabilities expand worldwide, international cooperation with allies and friends is dramatically increasing. Assuming we obtain agreements with Poland and the Czech Republic and obtain congressional approval to proceed, MDA intends to begin site construction for additional long range interceptors and a fixed-site radar in Europe to defend allies and deployed forces in Europe and expand the U.S. homeland defense against limited Iranian long-range threats. Also, we have undertaken substantive cooperative efforts with European, Middle Eastern, and Asian nations. With the purchase of Aegis BMD and Patriot Advanced Capability-3 assets, and with our fielding of a transportable X-band radar at Shariki, Japan is in the process of fielding a multilayered system interoperable with the U.S. system. Further, with MDA's support, the Department of Defense participated with Israel to develop an Israeli missile defense architecture that can meet threats expected in the next decade. We also held meetings with senior Russian officials and technical experts to discuss both threat perceptions and missile defense cooperation, including the potential for partnering with Russia in a joint regional architecture.

Mr. Chairman, one last point before I continue. In February the Department of Defense called on our country's missile defenses to destroy a large tank of toxic fuel

onboard an out-of-control U.S. satellite about to reenter the Earth's atmosphere. The uncertainty of when and where the satellite would reenter, and the near certainty that the fuel tank would survive reentry and possibly break up on Earth, drove the urgency of this mission. Using an extensively modified SM-3 interceptor and a modified Aegis Weapon System onboard the USS Lake Erie, the Navy successfully destroyed the tank. The Department undertook this operation, carefully choosing an intercept altitude that would not add to the debris currently in orbit, to protect against the possible risk to life that a natural reentry of the satellite could have posed. After engagement, the toxic hydrazine dissipated in space, and, by now, most of the debris from the satellite body has burned up in the Earth's atmosphere.

This was a very successful joint mission involving the Navy, U.S. Strategic Command, the Missile Defense Agency, the National Aeronautics and Space Administration, the National Reconnaissance Office, and other national security offices. Missile Defense Agency engineers worked closely with the Navy to modify the interceptor and the Aegis weapon system for this one-time engagement. This was a case where the missile defense system was unexpectedly pushed into service and performed exceptionally well. While this stands as an example of what the nation received for its investment in missile defense, I want to be clear that it does not represent an operational anti-satellite capability. The time and level of technical expertise it took to plan and orchestrate this mission, the split-second fragility of the once-per-day shot opportunities, and the relatively low altitude of the satellite's decaying orbit did not approach the responsive and robust capability that would be needed to attack enemy space assets in wartime.

## **THREAT UPDATE**

To lay the foundation for our budget request, let me review why missile defense is so critically needed. There remains intense interest in several foreign countries to develop ballistic missile capabilities. In fact, there were over 120 foreign ballistic missile launches in 2007, significantly exceeding what we observed in previous years. This comes on the heels of a very active 2006, during which time both North Korea and Iran demonstrated an ability to orchestrate campaigns involving multiple and simultaneous launches using missiles of different ranges. Currently, North Korea has hundreds of deployable short- and medium-range ballistic missiles and is developing a new intermediate-range ballistic missile and a new short-range, solid-propellant ballistic missile, which it test-launched in June 2007. Iran has the largest force of ballistic missiles in the Middle East (several hundred short- and medium-range ballistic missiles), and its highly publicized missile exercise training has enabled Iranian ballistic missile forces to hone wartime skills and new tactics.

North Korea's ballistic missile development and export activities remain especially troubling. Pyongyang continues to press forward with the development of a nuclear-capable ICBM. While the firing of the Taepo Dong 2 in July 2006, launched together with six shorter-range ballistic missiles, failed shortly after launch, North Korean engineers probably learned enough to make modifications, not only to its long-range ballistic missiles, but also to its shorter-range systems. North Korea's advances in missile system development, particularly its development of new, solid fuel intermediate-range and short-range ballistic missiles, could allow it to deploy a more accurate, mobile,

and responsive force. North Korea's nuclear weapons program makes these advances even more troubling to our allies and the commanders of our forces in that region.<sup>1</sup>

In addition to its uranium enrichment activity, Iran continues to pursue newer and longer-range missile systems and advanced warhead designs. Iran is developing an extended-range version of the Shahab-3 that could strike our allies and friends in the Middle East and Europe as well as our deployed forces. It is developing a new Ashura medium-range ballistic missile capable of reaching Israel and U.S. bases in Eastern Europe.<sup>2</sup> Iranian public statements also indicate that its solid-propellant technology is maturing; with its significantly faster launch sequence, this new missile is an improvement over the liquid-fuel Shahab-3.<sup>3</sup> Iran has reportedly bought a new intermediate-range ballistic missile (IRBM) under development by North Korea;<sup>4</sup> this underscores the urgent need to work with our allies in the North Atlantic Treaty Organization (NATO) to field and integrate long-range missile defenses in Europe. Moreover, Iran's development of a space launch vehicle using technologies and designs from its ballistic missiles means Iran could have an ICBM capable of reaching the United States by 2015.<sup>5</sup>

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<sup>1</sup> Oral Statement by the Director of the Defense Intelligence Agency, Lieutenant General Michael D. Maples to the Senate Select Committee on Intelligence Annual Threat Assessment Hearing, 5 Feb 2008 <http://www.dia.mil/publicaffairs/Testimonies/Statement29.pdf>; Current and Projected National Security Threats to the United States, Lieutenant General Michael D. Maples, U.S. Army Director, Defense Intelligence Agency, Statement for the Record, Senate Armed Services Committee, 27 February 2007 <http://www.dia.mil/publicaffairs/Testimonies/statement28.html>.

<sup>2</sup> Statement of Lieutenant General Michael D. Maples, 5 February 2008.

<sup>3</sup> Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 January to 31 December 2005, Central Intelligence Agency, <http://dni.gov/reports/CDA%2011-14-2006.pdf>.

<sup>4</sup> Statement of Lieutenant General Michael D. Maples, 5 February 2008.

<sup>5</sup> Current and Projected National Security Threats to the United States Vice Admiral Lowell E. Jacoby, U.S. Navy Director, Defense Intelligence Agency Statement For the Record Senate Armed Services Committee, 17 March 2005 <http://www.dia.mil/publicaffairs/Testimonies/statement17.html>

Syria is working to improve its ballistic missile capabilities and production infrastructure. Today Syria is capable of striking targets in Israel and Turkey, our southern NATO partner, using rockets and ballistic missiles. Syria can produce longer-range Scud variant missiles using considerable foreign assistance from countries such as North Korea and Iran.<sup>6</sup> So our vigilance must extend well out into the future, when the threats we face today have grown and new threats may have emerged.

## **NEW MISSILE DEFENSE PROGRAM STRUCTURE**

We have established a new block structure to organize our program of work and present our budget. The Agency has made this change to address concerns about transparency, accountability, and oversight and to better communicate to Congress and other key stakeholders. The new approach has several key tenets:

- Blocks will be based on fielded missile defense capabilities that address particular threats and represent a discrete program of work—not on biennial time periods.
- When MDA believes a firm commitment can be made to the Congress, the Agency will establish schedule, budget, and performance baselines for a block. Block schedule, budget, and performance variances will be reported.
- Once baselines are defined, work cannot be moved from one block to another.

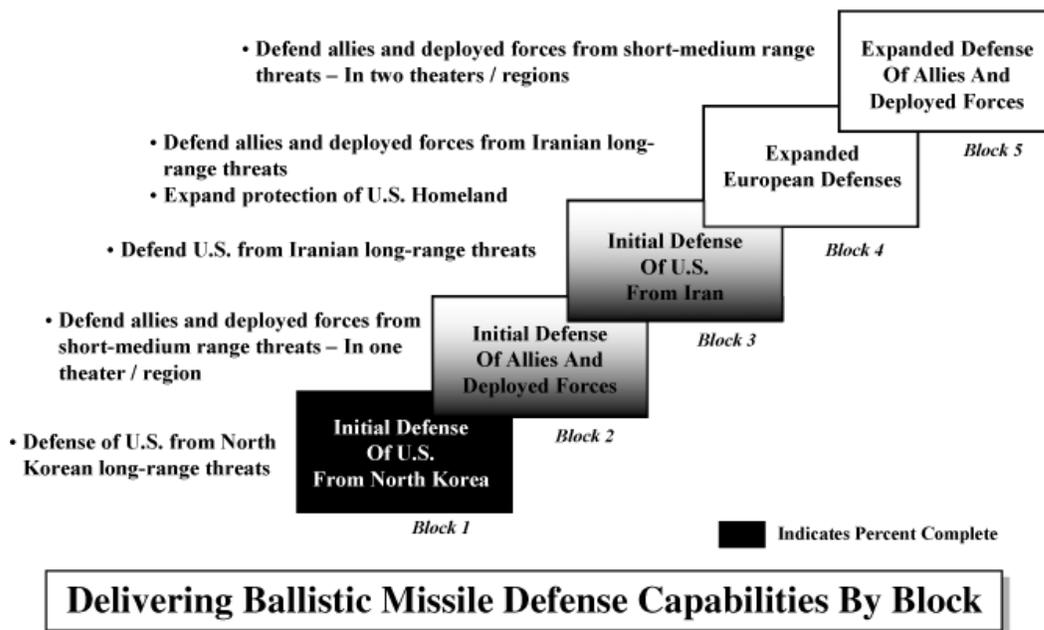
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<sup>6</sup> Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 January to 31 December 2005, Central Intelligence Agency.

Based on the above tenets, MDA has currently defined five blocks (see figure 1). Blocks 1.0, 3.0, and 4.0 deliver capabilities for long-range defenses, while Blocks 2.0 and 5.0 deliver capabilities to address the short- and medium/intermediate-range threats.



## Capability-Based Block Structure



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*Figure 1: Capability-Based Block Structure*

Future blocks (Block 6.0, etc.) will be added when significant new capabilities are expected to be fielded based on technological maturity, affordability, and need. For example, a new Block 6.0 might include enhanced defense of the United States against complex countermeasures, drawing on volume kill capabilities from the multiple kill vehicle (MKV) program, improved discrimination capabilities on our integrated sensor,

command and fire control network as well as upgraded hardware and software on our weapon systems.

MDA's budget is organized through the period of the Future Years Defense Program based on the new block structure. Also, program funding that does not fit into Blocks 1.0 through 5.0 is assigned to four general categories:

- *Capability Development* – technologies such as the Airborne Laser, Multiple Kill Vehicle, Kinetic Energy Interceptor, Far-Term Sea Based Terminal, Project Hercules and the Space Tracking and Surveillance System, which address future challenges and uncertainties
- *Sustainment* - operations and support of weapon systems, sensors, and command and fire control components
- *Mission Area Investment* – activities that support multiple efforts and cannot be reasonably assigned to a specific block or capability development program (e.g., intelligence and security; modeling and simulation; systems engineering and testing cores; safety, and mission assurance)
- *MDA Operations* – activities that support the Agency, such as Management Headquarters and Base Realignment and Closure (BRAC)

## **HIGHLIGHTS OF BUDGET SUBMISSION FOR FY 2009**

Our priorities in the FY 2009 budget submission include near-term development, fielding, integration and sustainment of Blocks 1.0 through 5.0; increasingly robust testing; and a knowledge-based Capability Development program.

### ***Block 1.0***

We are nearing completion of the work in Block 1.0. We are requesting \$59 million for fiscal year 2009, mostly to conduct additional system ground and flight tests to support a final Block 1.0 capability declaration.

This past year we saw an unprecedented pace of fielding of an integrated missile defense capability, much of it related to Block 1.0. In 2007 we emplaced 10 additional GBIs, for a total of 24 interceptors in missile fields at Fort Greely, Alaska and Vandenberg Air Force Base, California. In 2008 we plan to increase interceptor inventories up to a total of 30 at the two sites. By the end of 2008, we will complete work installing the Long-Range Surveillance and Track (LRS&T) capability on 18 Aegis BMD ships. These ships will contribute to long-range defense by passing early detection, cueing, and tracking data across communications lines into BMD system communication and battle manager nodes located at Fort Greely and in Colorado Springs.

This past year we transitioned the transportable forward-based X-band radar at Shariki Air Base, Japan from the interim site to a permanent location. This radar provides precise early detection and tracking to increase the probability we will destroy any lethal target launched by North Korea. The Sea-Based X-band radar (SBX) completed crew training and testing off the coast of Hawaii and transited to the North Pacific to conduct a cold weather shakedown off Adak, Alaska, where it will be home-ported in 2009. The SBX participated in system flight tests this past year, including the September 28 long-range intercept test and the December 17 engagement of a medium-range separating target

at sea by our ally, Japan. This summer the radar will again participate in a long-range intercept test.

In 2007 we completed the fielding of C2BMC infrastructure to improve our ability to operate with Japan and receive direct feed from the Space-based Infrared System. We moved communications equipment and shelters to support the forward based X-band radar at Shariki and installed a second server suite at U.S. Pacific Command. We also began fielding enhanced C2BMC displays and improvements to our communications capabilities. The Parallel Staging Network we installed at U.S. Strategic, Northern, and Pacific Commands as part of the Concurrent Test, Training and Operations (CTTO) capability, will be completed this year. Without impeding the operational readiness of the system, CTTO allows the warfighter to conduct training and the Missile Defense Agency to continue with spiral upgrades, testing and development.

By 2009 we plan to install additional planning and situational awareness capabilities to facilitate executive decision-making in the European Command. C2BMC capabilities also provide our senior government leadership situational awareness of hostile ballistic missile activities and updates on the performance of the ballistic missile defense system.

### ***Block 2.0***

Since 2002 we have expanded and improved terminal and midcourse defenses to defeat short- and medium-range threats from land and sea. We are requesting about \$1.3 billion for FY 2009 for Block 2.0 fielding, development, and integration. This block represents the foundation of the capabilities required to protect forces we deploy abroad and our allies and friends, initially in a single region or theater of combat.

We began fielding SM-3 interceptors in 2004. Block 2.0 comprises 71 SM-3 Block I and IA interceptors (we will have 38 in inventory by the end of 2008). To date, we have converted 12 Aegis BMD LRS&T ships to engagement-capable ships. By year's end, we will have 18 Aegis BMD ships--15 destroyers and 3 cruisers--all of which will have surveillance and track as well as engagement capabilities. For the past three years, the Navy and MDA have collaborated on plans for a Sea-Based Terminal defensive layer. We are upgrading the Aegis BMD weapon system, and the Navy is upgrading the SM-2 Block IV missile, the goal being to deploy up to 100 interceptors to provide a near-term terminal engagement capability on 18 Aegis BMD ships beginning in 2009.

We are working closely with the Army to begin developing and fielding by 2009 two Terminal High Altitude Area Defense fire units, with the plan to deliver them by 2010 and 2011. THAAD is uniquely designed to intercept targets both inside and outside the Earth's atmosphere. Consisting of 48 interceptors and the associated radars and C2BMC, THAAD will provide transportable terminal protection from short- to medium-range ballistic missiles for our troops and our allies.

### ***Block 3.0***

We are requesting about \$1.7 billion for FY 2009 to expand the defense of the United States to include limited Iranian long-range threats. Block 3.0 builds on the foundation established by Block 1.0. Block 3.0 provides 14 additional GBIs above what we plan to deploy by 2008, along with two key radars needed for protection of the United States – the upgraded early warning radars at Fylingdales in the United Kingdom and at Thule in Greenland.

This past year we completed operational testing of the Royal Air Force Fylingdales radar and made the radar available to the warfighter for emergency situations. In 2007 we began upgrades to the Thule radar and will continue to integrate it into the system by 2009. Together with the early warning radars in California, Alaska and the United Kingdom, the Thule radar will ensure coverage of the United States against threats from the Middle East. In the Pacific theater, we will continue to enhance additional forward-based X-band radar capabilities in Japan and at other operating locations to meet warfighter needs.

Block 3.0 also provides capabilities to defeat more sophisticated midcourse countermeasures. We are pursuing two parallel and complimentary approaches to counter complex countermeasures: first, more sophisticated sensors and algorithms to discriminate the threat reentry vehicle in the presence of countermeasures; and second, a multiple kill capability to intercept the objects identified by the discrimination systems as potential threat reentry vehicles. Block 3.0 will focus on the first of these approaches. It includes upgrades to the Ground-Based Interceptors, sensors, and the C2BMC system. The full implementation of this approach will be conducted in phases, with the first phase referred to as “Near Term Discrimination” and the second phase as “Improved Discrimination and System Track.”

#### ***Block 4.0***

We are requesting about \$720 million for fiscal year 2009 for Block 4.0 fielding, development, and integration. Block 4.0 fields sensors, interceptors, and the C2BMC infrastructure needed to improve protection of the United States and, for the first time,

extend coverage to all European NATO allies vulnerable to long-range ballistic missile attack from Iran. This block focuses on deployment of the midcourse X-band radar, currently located at the Kwajalein test site, to the Czech Republic and the establishment of an interceptor field in Poland, pending agreements with both governments. By devaluing Iran's longer-range missile force, European missile defenses could help dissuade the Iranian government from further investing in ballistic missiles and deter it from using those weapons in a conflict. We believe that the long-range defense assets we are planning to deploy to Central Europe offer the most effective capability for defeating this threat.

The European Midcourse Radar would complement sensor assets deployed in the United Kingdom and Greenland and provide critical midcourse tracking data on threats launched out of the Middle East. The radar also would operate synergistically with the planned forward-based transportable X-band radar, jointly providing early threat detection and discrimination of the reentry vehicles.

A European Interceptor Site will consist of up to 10 interceptors, the two-stage configuration of our flight-proven 3-stage GBI. A 2-stage interceptor has less burn time than the 3-stage version, which allows it to operate within the shorter engagement timelines expected. Nearly all of the components used in the 2-stage interceptor are identical to those already tested and fielded in the 3-stage interceptor, which means modifications required to design, develop and produce a 2-stage variant are minimal. Nor are such modifications unprecedented. In fact, the first 10 Ground-based Midcourse Defense integrated flight tests, conducted between January 1997 and December 2002, successfully utilized a 2-stage variant of the 3-stage Minuteman missile. As we do with

all system elements and components, we have planned a rigorous qualification, integration, ground and flight testing program for the 2-stage interceptor.

Several countries in southern Europe do not face threats from Iranian long-range missiles. Yet these same countries are vulnerable to the shorter-range ballistic missiles currently fielded by Iran and Syria. Mobile system sensors for Aegis BMD, THAAD, and Patriot are designed to be augmented by other sensors, like the European Midcourse Radar, and their interceptors are designed to engage slower short- to medium-range ballistic missiles systems. Together with other NATO missile defense assets, these missile defense forces will protect European countries vulnerable to short- and medium-range ballistic missiles when integrated into the NATO command and control structure.

#### ***Block 5.0***

We are requesting \$835 million for Block 5.0 for FY 2009. This block builds on Block 2.0 to expand the defense of allies and deployed U.S. forces from short- to intermediate-range ballistic missile threats in two theaters. Block 5.0 will increase the number of SM-3 and THAAD interceptors and improve the performance of the Aegis BMD Weapons System and the SM-3 interceptor.

The SM-3 Block IB interceptor, a critical Block 5.0 development effort, will have major modifications to include a much improved seeker and a Throttleable Divert and Attitude Control System (TDACS). When combined with processing upgrades to the Aegis BMD Weapons System, the more capable Block IB interceptor will more readily distinguish between threat reentry vehicles and countermeasures. The Block IB expands the battle space and enables more effective and reliable engagements of more diverse and

longer-range ballistic missiles. This year we look forward to completing design and testing for the two-color seeker and TDACS and commencing the element integration of the SM-3 Block IB missile in 2009.

Block 5.0 includes delivery of 23 SM-3 Block IA interceptors, 53 SM-3 Block IB interceptors, 2 additional THAAD fire units with an additional 48 interceptors, one X-band transportable radar for forward deployment, and the associated C2BMC support.

### **Development/Operational Testing**

Testing under operationally realistic conditions is an important part of maturing the BMDS in all five blocks. We have been fielding test assets in operational configurations in order to conduct increasingly complex and end-to-end tests of the system. Our testing to date has given us confidence in the BMD system's basic design, hit-to-kill effectiveness, and operational capability. While the system is developmental, it is available today to our leadership to meet real world threats.

Our flight tests are increasing in operational realism, limited only by environmental and safety concerns. Each system test builds on knowledge gained from previous tests and adds increasingly challenging objectives. The Director, Operational Test and Evaluation, the Operational Test Agencies, and the warfighting community are very active in all phases of test planning, execution, and post-test analysis. Using criteria established by the war fighter and the Agency's system engineers, all ground and flight tests provide data that we and the operational test community use to anchor our models and simulations and verify system functionality and operational effectiveness.

In 2007 we conducted many system ground and flight tests. Our flight test program for Ground-Based Midcourse Defense, Aegis BMD, and Terminal High Altitude Area Defense confirmed technological progress for short-, medium-, and long-range defensive capabilities. Last year we executed successfully a long-range ground-based intercept, six SM-3 intercepts of separating and unitary targets, and three THAAD intercepts of unitary targets. As of today, we have demonstrated hit-to-kill in 34 of 42 attempts since 2001. Last year alone we successfully intercepted the targets in 10 of 10 attempts.

After a legacy target failure in May 2007, we successfully completed Ground-based Midcourse Defense Flight Test-03a on September 28, 2007. In this test, an operationally configured GBI launched from Vandenberg Air Force Base engaged a threat representative intermediate-range target fired from Kodiak Island, Alaska using sensor information from the operational upgraded early warning radar at Beale AFB in California. Trained crews manning fire control consoles reacted within a specified window under limited-notice launch conditions. This test leveraged fielded hardware and fire control software as well as operational communications, tracking, and reporting paths. The Exo-atmospheric Kill Vehicle successfully collided with the target near the predicted point of impact, destroying it. This was our most operationally realistic, end-to-end test of the long-range defenses to date. Though they were not official participants of the test, the Sea-Based X-band radar and an Aegis BMD ship using its onboard SPY-1 radar also tracked the target and gathered data for post-test analysis.

We also had enormous success with our integrated ground tests, which involve the operational long-range defense elements and employ the actual operational hardware. We test the system end-to-end by simulating engagements. These ground tests, conducted in a lab environment and in the field, involve the wider missile defense system community, to include the National Military Command Center, the Operational Test Agencies, and U.S. Northern Command. They teach us a great deal and give us confidence to move forward with our intercept tests. The most comprehensive to date, these tests demonstrated the ability of the system to execute multiple, simultaneous engagements using operational networks and communications and fielded system elements in different combinations. The war fighter also was able to evaluate tactics, techniques and procedures. In 2008 and 2009 we will continue our integrated ground test campaigns.

We completed five sea-based intercept tests in 2007. In all Aegis BMD tests, we do not notify the ship's crew of the target launch time, forcing crew members to react to a dynamic situation. This past year we successfully used Aegis BMD cruisers and destroyers to engage threat-representative short-range ballistic missiles and medium-range separating targets. We conducted a test with the U.S. Navy involving simultaneous engagements of a short-range ballistic missile and a hostile air target, demonstrating an ability to engage a ballistic missile threat as the ship conducts self-defense operations. In November we simulated a raid attack on an Aegis BMD cruiser using two short-range ballistic missiles. The cruiser destroyed both targets.

The December 2007 test off the coast of Kauai in Hawaii marked the first time an allied Navy ship successfully intercepted a ballistic missile target with the Aegis BMD midcourse engagement capability. The SM-3 successfully intercepted the medium-range separating target in space, verifying the engagement capability of the upgraded Japanese destroyer. It also marked a major milestone in the growing missile defense cooperative relationship between Japan and the United States.

Terminal High Altitude Area Defense completed three intercept flight tests against threat-representative short-range unitary targets in the atmosphere and in space. In addition, the THAAD radar and fire control participated in two Aegis BMD flight tests to demonstrate THAAD-Aegis interoperability. These initial THAAD intercept tests at the Pacific Missile Range Facility in Hawaii demonstrated integrated operation of the system, including radar, launcher, fire control equipment and procedures, and the ability of the interceptor to detect, track and destroy the target. Soldiers of the 6th Air Defense Artillery Brigade stationed at Fort Bliss, Texas operated all THAAD equipment during the tests, which contributed to operational realism.

In 2007 the Missile Defense Agency conducted 25 major tests and successfully met our primary test objectives in 18 of 20 flight tests. In doing so, we used the test ranges available to us today to maximum capacity. These totals include three Patriot tests, two Arrow tests, and the U.S.-Japan cooperative test. Our test plans for 2008 and 2009 will continue to use more complex and realistic scenarios for system-level flight tests and demonstrate interceptor capabilities against more stressing targets.

In 2008 we are planning two system-level long-range intercept tests, and two more in 2009, all of which will push the edge of the envelope in testing complexity. The tests in 2008 will involve targets launched from Kodiak, Alaska and missile defense assets separated by thousands of miles. We are expanding the number of sensors available to cue the system and engage targets. In our next long-range test, we will involve the early warning radar at Beale and the forward-based X-band radar, temporarily sited at Juneau, Alaska. This test also will demonstrate integration of the Sea-Based X-band radar into the sensor support system. The intermediate-range target will have countermeasures. Later in 2008 Ground-based Midcourse Defense will attempt to defeat a longer-range threat-representative target and demonstrate the ability of the SBX to send tracking and discrimination data through Ground-based Midcourse Defense Fire Control and Communications to the Exo-atmospheric Kill Vehicle prior to engagement.

We plan three Aegis BMD intercept tests in 2008 and 2009. In 2008 we will demonstrate an intercept of a unitary, short-range ballistic missile target in the terminal phase of flight using a SM-2 Block IV interceptor. Later this year we will conduct the second Japanese intercept test against a medium-range target warhead. And in 2009 we will conduct an intercept flight test against a medium-range target to demonstrate an expanded battle space.

The first test of THAAD this year will involve engagement of a separating target low in the atmosphere. In the fall we plan to demonstrate THAAD's salvo-launch capability against a separating target. In late spring 2009 THAAD will engage a complex

separating target in space. And in 2009 we will increase test complexity by demonstrating THAAD's ability to destroy two separating targets in the atmosphere.

In addition to our system flight- and ground-test campaigns, the Missile Defense Agency will continue to participate in Patriot combined developmental/operational tests as well as Air Force Glory Trip flight tests.

### **Knowledge-Based Capability Development**

The proliferation of ballistic missile technologies and systems means we will face unexpected and more challenging threats in the future. We are requesting about \$2.5 billion in FY 2009 for capability development work to deliver advanced capabilities that will help ensure America's ballistic missile defense system remains effective and reliable and a major element in our national defense strategy well into this century.

Destroying ballistic missiles in boost phase will deprive the adversary of opportunities to deploy in midcourse multiple reentry vehicles, sub-munitions, and countermeasures, thereby reducing the number of missiles and reentry vehicles having to be countered by our midcourse and terminal defenses. Success in the boost phase will increase the probability we will be successful in defeating an attack in the other defensive phases. As part of this layered defense strategy, we are developing the Airborne Laser (ABL) and Kinetic Energy Interceptors (KEI).

ABL is being developed to destroy ballistic missiles of all ranges. In 2007 the ABL program met all of our knowledge point expectations and cleared the way for the installation of the high-power laser on the aircraft by the end of 2008. We completed in-

flight atmospheric compensation demonstrations and conducted low power systems integration testing, successfully demonstrating ABL's ability to detect, track, target, and engage non-cooperative airborne targets. Next we will integrate the high power systems and gear up for a series of flight tests leading to a full demonstration and lethal shoot-down in 2009 of a threat-representative boosting target.

The KEI program will provide mobile capabilities to intercept ballistic missiles in the boost, ascent or midcourse phases of flight. This multi-platform, multi-payload, rapidly deployable capability could not only extend the reach of the missile defense system, but it also will add another defense layer. In 2007 we completed hypersonic wind tunnel testing of the booster and successfully conducted static firings of the first- and second-stage motors. This year we are focusing on preparations for the 2009 flight test of the KEI booster, which, if successful, will demonstrate we are ready to proceed to intercept testing and integration into the system.

We are pursuing parallel and complementary efforts to counter complex countermeasures. Project Hercules is developing a series of algorithms to exploit physical phenomenology associated with threat reentry vehicles to counter on-the-horizon advanced threats and counter-countermeasures for employment in system sensors, kill vehicles, and C2BMC. The algorithms will improve sensor and weapon element tracking and discrimination via data integration and multi-sensor fusion data integration.

In the years ahead we expect our adversaries to have midcourse countermeasures. The Multiple Kill Vehicle (MKV) program is developing a payload for integration on

midcourse interceptors to address complex countermeasures by identifying and destroying all lethal objects in a cluster using a single interceptor. This past year we delivered the initial models and simulation framework for testing sophisticated battle management algorithms and developed the liquid fuel divert and attitude control system.

Our strategy is to manage all future kill vehicle development under a single program office and acquire MKV payloads using a parallel path approach with two payload providers pursuing different technologies and designs. This strategy will allow us to better leverage industry experience and talent. The MKV approach leverages commonality and modularity of kill vehicle components on various land- and sea-based interceptors, to include KEIs, GBIs, and a Block IIB version of the SM-3. The goal is to demonstrate a multiple kill capability in 2011 through a series of component development and test events.

We are undertaking significant upgrades to the BMD Signal Processor in the Aegis BMD weapons system. Through our cooperative program with Japan, we are upgrading the SM-3 Block I interceptor with the SM-3 Block II to engage longer-range ballistic missiles. This faster interceptor will feature an advanced kinetic warhead with increased seeker sensitivity and divert capability. We also will implement upgrades to the Aegis BMD Weapons System. The first flight test is scheduled for 2012. The Far-Term Sea-Based Terminal program will expand upon the near-term capability provided by the SM-2 Block IV blast-fragmentation interceptor by engaging longer-range threats. This year and next we will define weapons system requirements as we work toward initial fielding as early as 2015.

We are developing the Space Tracking and Surveillance System (STSS) to enable worldwide acquisition and tracking of threat missiles. Sensors on STSS satellites will provide fire control data for engagements of threat reentry vehicles and, when combined with radar data, will provide improved threat object discrimination. In 2008 we will deliver two demonstration satellites scheduled for launch later in the year and a common ground station. We plan to use both targets of opportunity and dedicated targets to demonstrate STSS capabilities from lift-off through midcourse to reentry. The knowledge gained from these demonstrations will guide our decisions on the development of a follow-on space sensor constellation.

I believe the performance of the BMD system could be greatly enhanced someday by an integrated, space-based interceptor layer. Space systems could provide on-demand, near global access to ballistic missile threats, minimizing limitations imposed by geography, absence of strategic warning, and the politics of international basing rights. I would like to begin concept analysis and preparation for small-scale experiments. These experiments would provide real data to answer a number of technical questions and help the leadership make a more informed decision about adding this capability.

We have had to restructure some development activities and cancel others as a result of reductions in our FY 2008 budget. Reductions in funding for the European Site Initiative, STSS, ABL, and MKV programs will result in some schedule delays. Cuts in the system engineering work, including modeling and simulations, undermine our ability to develop and field an integrated system, which requires a collaborative effort by MDA and our industry partners that cuts across many disciplines and specialties. The ability to

do this cross-cutting engineering work will become increasingly important as we move, for example, towards developing common kill vehicles and common interceptors.

I remain deeply concerned about the future threat environment, and consequently believe each one of these efforts is critical to maintaining our defenses in the uncertain years ahead.

### **SETBACKS IN 2007**

With our unprecedented success in 2007 came several setbacks. We experienced a target failure in our first attempt for FTG-03 as mentioned earlier. While this was only the second complete target failure in 42 flight tests, it was a signal that we needed to revamp our target program, which is underway. We are at a critical juncture in the target program transitioning from the legacy booster motors to the more modern Flexible Target Family, and I intend to make this a high priority in 2008.

In addition, we are investigating a nozzle failure that occurred in the second static firing of the KEI second stage. While investigation is underway, we plan to execute the first booster flight in 2009.

We also experienced some cost growth in the THAAD, Aegis and GMD programs which is being addressed within the overall missile defense portfolio. The THAAD cost growth was due to test delays, additional insensitive munitions testing and its deployment to the Juniper Cobra 09 exercise in Israel. Aegis cost growth was generated from extended work on the SM-3 Third Stage Rocket Motor and the Divert and Attitude Control System. This work also delays the delivery of the Block 1B interceptors by one

year. GMD cost growth was due to the modifications required for the 2-stage version, the additional missile field in Alaska, and repair of the water damage silos.

## **RETAINING INTEGRATED DECISION AUTHORITY**

I would now like to turn to a topic very near and dear to me. I urge the Committee to continue its support of the integrated decision authority that the MDA Director has been given for the missile defense portfolio. As you know, working with the U.S. STRATCOM Commander, I have the ability to propose the evolution of the missile defense system based on all relevant requirements, acquisition, and budget information. This authority was necessary in light of the President's 2002 directive to begin deployment in 2004 of a set of missile defense capabilities that would serve as a starting point for improved and expanded missile defense capabilities later.

I present to you two telling quotes from the 2006 Defense Acquisition Performance Assessment (DAPA) report chartered by the Department.

*“[T]he budget, acquisition, and requirements processes are not connected organizationally at any level below the Deputy Secretary of Defense. This induces instability and erodes accountability. Segregation of requirements, budget and acquisition processes create barriers to efficient program execution.”*

*“Acquisition programs need to deliver timely products. Our assessment is that the culture of the Department is to strive initially for the 100 percent solution in the*

*first article delivered to the field. Further, the “Conspiracy of Hope” causes the Department to consistently underestimate what it would cost to get the 100 percent solution. Therefore, products take tens of years to deliver and cost far more than originally estimated.”*

Well, the DAPA report could have cited the one place in the Defense Department below the Deputy Secretary where requirements, acquisition, and budget authority comes together—the Missile Defense Agency. This authority has given me the trade space to make a balanced recommendation to the Deputy Secretary that has paid dividends for defense of our homeland, deployed forces, allies, and friends.

MDA has fielded an initial capability consisting of 24 Ground-Based Interceptors; 17 Aegis BMD warships capable of long-range surveillance and tracking, of which 12 are also capable of missile intercepts; 23 Standard Missile-3 interceptors for Aegis BMD warships; 18 SM-2 Block IV interceptors; an upgraded Cobra Dane radar; two upgraded early warning radars; a transportable X-band radar; a command and control, battle management, and communications capability, and a sea-based X-band radar. None of this capability existed as recently as June 2004. This rapid fielding would never have been possible unless I had the integrated decision authority over requirements, acquisition, and budget. I think it is fair to say that this capability would have taken 2 to 3 times longer to field under standard Department practices—if not the “tens of years” cited by DAPA.

Should this integrated decision authority be continued now that we have successfully met the President's injunction to quickly field an initial capability where no capability had previously existed? I would make four key points in favor of retaining this authority.

First, the Director of MDA is in the best position to know the program's progress and challenges. This does not mean that I make decisions in a vacuum. We work closely with the intelligence community, the war fighter, and the Services on the threat, capability needs, and available resources. In addition to the external oversight from your committee and others in Congress and, of course, the Government Accountability Office, I also receive significant Department-level oversight from Under Secretary AT&L, the Office of the Secretary of Defense Comptroller, and the Missile Defense Executive Board. However, it does mean that I have a degree of control and trade space that is not available to the managers of other major defense acquisition programs.

Second, because the ballistic missile threat is always evolving, we need to be as agile as possible in getting the latest capabilities to the war fighter. The integrated requirements, acquisition, and budget authority granted MDA's Director inevitably enables us to deliver a capability more quickly to meet the evolving missile threat.

Third, while some see MDA's flexibilities as undeserved special treatment, others view MDA's integrated decision authority as, in effect, a "test lab" for the Under Secretary of Defense AT&L to examine alternative, creative approaches to acquiring joint capabilities.

Fourth, ballistic missile defense is and always will be the quintessential joint program. No one Service could easily or naturally take responsibility for developing, testing, integrating, and fielding the BMDS. The trade space offered me as portfolio manager of the entire BMD program is considerably wider than it would be if MDA were wedded to one Service or merely an advocate within the Office of the Secretary or joint staff who is trying to negotiate with a myriad of individual program managers protecting their own turf.

On a personal level, I take my stewardship responsibilities very seriously. I will not be in this position forever, and I know how vitally important it is to put my successor in the best position to give the war fighter the capabilities needed to negate the threats to our homeland, deployed forces, allies and friends. The integrated decision authority granted me as MDA Director does just that, and I urge your continued support.

## **ORGANIZATIONAL REENGINEERING**

MDA's reengineering goal is to transform the organization into a single, integrated high-performance team capable of sustaining its development and test successes and maximizing its efficiency and effectiveness in acquiring, fielding, and supporting an integrated, operational BMDS. To accomplish this goal, I have established policies and defined responsibilities for providing qualified matrix support to the program directors/managers (PD/PM) responsible for delivering BMDS capabilities to the COCOMs. Matrixing is an organizational concept that consolidates skills and resources under a functional manager who, in turn, allocates persons and resources among

executing organizations needing these skills. Matrixed support includes such functions as engineering, contracts, business/financial management, cost estimating, acquisition management, logistics, test, safety quality and mission assurance, security, administrative services, information assurance, and international affairs. The matrix management process aims to strengthen PD/PM capabilities by assuring their accessibility to all expertise available to MDA; increasing accountability for quality of functional staff work; and allocating personnel resources according to the Agency's needs.

MDA has established the following objectives to focus the reengineering efforts:

- Implement a full matrix management construct to strengthen functional responsibilities at both the BMDS and element level of program execution
- Establish key new or restructured organizations and centers to strengthen the implementation of an integrated system
- Establish key knowledge centers to focus MDA resources on and within critical mission technical areas<sup>7</sup>
- Complete an organizational alignment assessment to improve agency efficiency and effectiveness through elimination of redundancy of functions and infrastructure, multiple layers of management and non-critical functions, and a verification that resources are aligned with MDA priorities

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<sup>7</sup> Knowledge centers for Interceptors, C2BMC, and Sensors were established in January 2008. Centers for Space and Directed Energy will be established later in 2008.

- Relocate MDA offices from the National Capital Region (NCR) to Huntsville and selected other locations to realize the benefits of a centralized control/decentralized execution strategy, facilitate leveraging all resources available in MDA and propagate better cross-flow of expertise and information.

### **BASE REALIGNMENT AND CLOSURE (BRAC)**

The 2005 Defense Base Realignment and Closure Commission approved recommendations directing the realignment of several MDA directorates from the NCR to government facilities at Fort Belvoir, Virginia, and the Redstone Arsenal in Huntsville, Alabama. Specifically, a Headquarters Command Center for MDA will be located at Fort Belvoir, while most other MDA functions will be realigned to Redstone Arsenal. The transfer of government and contractor personnel from the NCR is already in progress; by the end of 2008, we will have transitioned some 1,100 personnel positions to the Arsenal. Also, construction will start in FY 08 on additional facilities to be opened in two phases in FY 2010 and FY 2011. Construction of the MDA Headquarters Command Center (HQCC) is also scheduled to begin in late FY 2008, with occupancy in FY 2010.

### **MISSILE DEFENSE AGENCY ENGINEERING AND SUPPORT SERVICES**

Consistent with the Agency's reengineering, MDA has undertaken the task of improving how it procures contractor support services (CSS). The objectives of the change are to improve oversight, enable matrix management so the Agency can benefit more from cross-flow of information among different offices, enhance efficiency and

transparency, and more accurately account for our cost of doing business. I have determined that the best path forward is to develop a new Agency-wide procurement; the designation for this procurement is Missile Defense Agency Engineering and Support Services (MiDAESS).

We currently receive contractor support through a variety of different avenues, such as contracts, other government agencies, and General Services Administration orders. Over the next few years, the MiDAESS procurement will allow us to consolidate the CSS into a more efficient procurement, focused on the primary areas of technical, administrative, financial, and other support that our agency requires.

Beginning in March 2007, we began discussions with our industry partners regarding MiDAESS. Throughout 2007, MDA has received industry feedback and continues to refine the details of how competition and contracting within MiDAESS will function. We plan to begin initial contract awards under MiDAESS in 2008.

## **CLOSING**

Mr. Chairman and members of the Committee, in closing, I again want to thank you for your strong support of our program. Since 2002 we have achieved dramatic program efficiencies and effectiveness because we have been able to consolidate missile defense expertise and integrate all missile defense elements into a single, synergistic system. We have made tremendous progress deploying missile defenses to protect our homeland, our troops deployed and our allies and friends. I also believe we have the right program in place to address more advanced threats we may face in the future.

Our investment in missile defense is significant, but our expenditures would pale in comparison to the overwhelming price this nation could pay from a single missile impacting America or one of our allies. We need your continued support to carry on the tough engineering and integration task of developing and enhancing worldwide ballistic missile defenses.

This concludes my statement. I look forward to your questions.