[H.A.S.C. No. 110–48]

HEARING

ON

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2008

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES
ONE HUNDRED TENTH CONGRESS

FIRST SESSION

STRATEGIC FORCES SUBCOMMITTEE HEARING

ON

BUDGET REQUEST FOR MISSILE DEFENSE PROGRAMS

HEARING HELD
MARCH 27, 2007

U.S. GOVERNMENT PRINTING OFFICE
37–954 WASHINGTON : 2008

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

STRATEGIC FORCES SUBCOMMITTEE

ELLEN O. TAUSCHER, California, *Chairman*

JOHN SPRATT, South Carolina	TERRY EVERETT, Alabama
SILVESTRE REYES, Texas	TRENT FRANKS, Arizona
RICK LARSEN, Washington	MAC THORNBERRY, Texas
JIM COOPER, Tennessee	MICHAEL TURNER, Ohio
HANK JOHNSON, Georgia	MIKE ROGERS, Alabama
DAVID LOEBSACK, Iowa	

FRANK ROSE, *Professional Staff Member*
KARI BINGEN, *Professional Staff Member*
CATERINA DUTTO, *Staff Assistant*

CONTENTS

CHRONOLOGICAL LIST OF HEARINGS

2007

TUESDAY, MARCH 27, 2007

FISCAL YEAR 2008 NATIONAL DEFENSE AUTHORIZATION ACT—BUDGET REQUEST FOR MISSILE DEFENSE PROGRAMS

STATEMENTS PRESENTED BY MEMBERS OF CONGRESS

WITNESSES

APPENDIX

FISCAL YEAR 2008 NATIONAL DEFENSE AUTHORIZATION ACT—BUDGET REQUEST FOR MISSILE DEFENSE PROGRAMS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
STRATEGIC FORCES SUBCOMMITTEE,
Washington, DC, Tuesday, March 27, 2007.

The subcommittee met, pursuant to call, at 3:00 p.m., in room 2212, Rayburn House Office Building, Hon. Ellen Tauscher (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. ELLEN O. TAUSCHER, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, STRATEGIC FORCES SUBCOMMITTEE

Ms. TAUSCHER. The committee will come to order.

The Strategic Forces Subcommittee meets this afternoon to receive testimony on the fiscal year 2008 budget request for missile defense programs.

Our witnesses today include Lieutenant General Henry Obering, director of the Missile Defense Agency (MDA); Lieutenant General Kevin Campbell, commanding general, U.S. Army Space and Missile Defense Command; the Honorable James McQueary, Department of Defense (DOD) Director of Operational Test and Evaluation (DOT&E); and Mr. Brian Green, Deputy Assistant Secretary of Defense for Strategic Capabilities.

Gentlemen, welcome, and thank you for the outstanding contributions that you and the people that serve with you make to the security of our Nation. This subcommittee greatly appreciates your efforts and dedication to your mission.

I would like to start by making it clear that this subcommittee and the full committee have always expressed bipartisan support for developing and deploying an effective missile defense system. The protection of our Nation and the credibility of our last line of defense against a missile strike is not a political issue. In the final analysis, we as Congress and the Administration are all responsible for protecting the American people and our deployed forces against missile threats.

Too often in the past, the Bush Administration has attempted to rush the deployment of missile defense with overheated rhetoric that had little to do with the actual maturity of various elements of the missile defense system. That has served only to undermine the end goal. Both Democrats and Republicans want these programs to succeed.

Like many of my colleagues, I voted for the National Missile Defense Act of 1999, which stated that, "It is the policy of the United

States to deploy as soon as technologically possible an effective national missile defense system capable of defending the territory of the United States against limited ballistic missile attack." That policy, which became law, continues to be my position.

We want a system, but we want that system to work. My colleagues and I will insist that missile defenses are adequately tested before they are deployed. We will do so because we believe that effective missile defenses are an essential component to our country's over-arching defense and national security strategy.

Last year's defense authorization bill provides us with a bipartisan way to proceed on missile defense. That language said that DOD should place a high priority on fielding and testing near-term missile defense systems such as the Ground-Based Mid-Course Defense (GMD) System, Terminal High Altitude Area Defense (THAAD), Aegis Ballistic Missile Defense (BMD), and PATRIOT PAC–3.

This approach makes sense. It focuses on deploying near-term capabilities against the real threats we face. To effectively defend the American people and our homeland against a limited strike by a rogue nation, we must thoroughly test the Ground-Based Mid-Course Defense, GMD, System.

General Obering, I think that the Missile Defense Agency has taken significant steps to improve its testing program over the past several years. These changes paid off in September of 2006 when the GMD system completed its first successful intercept test since 2002. But challenges remain with MDA's test program.

In its 2006 annual report on the missile defense program, the Government Accountability Office (GAO) stated, "The performance of the ballistic missile defense system cannot yet be fully assessed because there have been too few flight tests conducted to anchor the models and simulations that predict overall system performance."

Dr. McQueary, I would like to hear your thoughts about GAO's conclusions and your assessments of MDA's efforts to conduct additional end-to-end testing, a DOT&E recommendation. Furthermore, I also appreciate your candid assessment of any possible limitations that you are experiencing in doing your job. Do your responsibilities for ensuring testing match your authorities? If not, what additional authorities do you need?

General Obering, I would be interested in hearing how you plan to address the concerns that have been raised about MDA's testing program by GAO and DOT&E. We also need to ensure that our warfighters receive the capabilities and support they need to protect the American people, our deployed forces and our allies.

General Campbell, I would like to know whether you believe the warfighter is playing a large enough role in setting the future priorities for the missile defense system. Furthermore, I would also like to know if you think that MDA's current organizational structure, with its focus on research and development, is structured appropriately to provide optimal support to the warfighter.

Finally, given the mutual threats we face, it is critical that we work with our allies on missile defense systems. Over the past several years, there have been a number of success stories in this area, such as our cooperation with Israel and Japan. In the fiscal

year 2008 budget request, the Administration is requesting funds to establish a GMD interceptor site in Europe.

I strongly support the need to work with our European allies on missile defense, but I am concerned that the Bush Administration's current proposal to move forward with the proposed deployment on a bilateral basis with Poland and the Czech Republic has not been sufficiently coordinated with North Atlantic Treaty Organization (NATO).

As vice chair of the NATO Parliamentary Assembly, I take our relationship with the Alliance very seriously. Over the past several months, many European officials, including some from Poland and the Czech Republic, have expressed concern that the Bush Administration's proposal lacks a strong NATO foundation. I know that sometimes it is faster to work with a coalition of the willing, but such coalitions usually don't have strong foundations.

Therefore, Mr. Green, the committee needs to know whether and how the Administration plans to provide a stronger multilateral foundation for its proposal.

On that note, let me turn the floor over to my very good friend, the distinguished Ranking Member of the subcommittee, Mr. Everett of Alabama.

Mr. Everett, the floor is yours.

STATEMENT OF HON. TERRY EVERETT, A REPRESENTATIVE FROM ALABAMA, RANKING MEMBER, STRATEGIC FORCES SUBCOMMITTEE

Mr. EVERETT. I thank my chairman and colleague. I join you in welcoming our guests also.

Let me join the chairman in thanking you for your leadership and please extend our thanks to the many men and women in your different organizations for their dedication, hard work and sacrifices that they are making on behalf of this Nation.

As we begin our discussion on our Nation's missile defense posture and budget request, I will note that missile defense has not always received bipartisan support. It has in the more recent hearings that we have had, particularly in this subcommittee and in the House Armed Services full committee.

But in last year's floor debate on the defense bill, an amendment was offered to cut MDA's budget by half. However, missile defense has enjoyed bipartisan support, as I said, in this committee. I want to personally thank the chairman for making her first subcommittee trip to Huntsville to focus on missile defense.

This subcommittee also has a strong history of working through areas where we may disagree. We ask tough questions and approach issues with thought and rigor. We respect each other's opinions and recognize that at the end of the day, we are here because we believe we must do all we can to increase the Nation's security.

In missile defense, it is important to reflect upon the events of the last year. On July 4, North Korea launched six short- and medium-range ballistic missiles capable of reaching our foreign-deployed forces and allies, and one longer-range missile potentially capable of reaching Hawaii and the Western U.S. Three months later, North Korea tested a nuclear device.

Iran continues to develop and test short- and medium-range ballistic missiles capable of reaching Israel and Europe. This includes a space-launch vehicle that could provide a cover for developing a longer-range missile. Iran has also continued efforts to enrich uranium in defiance of the United Nations (U.N.) Security Council. Worldwide proliferation of missile technology also continues.

Last, two months ago, China conducted an anti-satellite test using a medium-range ballistic missile. The threat is clearly at hand. While I continue to support a measured approach to testing, I strongly believe that we cannot afford to slow down the development and thwarting of those near-term missile defense elements crucial to our Nation's defense.

I also firmly believe that we must extend this protective coverage to our allies and friends. This year's Missile Defense Agency budget request is $8.9 billion. That is a decrease from last year and already reflects a reduction of over $500 million. So the Ground-Based Mid-Course Defense System in Alaska and California is a flagship capability in our Nation's national missile defense system.

I would like to note the breadth of our capabilities being funded within MDA's budget request: Aegis BMD, including work with Japan, air development with Israel, THAAD, ground-based early warning radar, a global command and control network, Federal space programs, Airborne Laser (ABL) and Kinetic Energy Interceptor (KEI), and a test program consisting of 25 fly and ground tests planned for fiscal year 2008.

General Obering, I would like to highlight a few specific areas that I am interested in hearing about today. Last year, this committee exerted its long preference for building near-term missile defense capabilities. Please describe how this year's budget reflects that congressional guidance. Also in last year's bill, Congress provided resources for concurrent tests, training and operation. I look forward to hearing how this is being funded.

General Campbell, I believe that this is the first time you have appeared before us. Thank you for coming.

I would like you to describe your role as the Joint Functional Component Commander (JFCC) for U.S. Stragegic Command (STRATCOM), and your relationship with MDA and the services; how you ensure that combatant commanders' missile defense needs are met. Pacific Command (PACCOM) and the U.S. Forces Korea (USFK) commanders recently testified before the full committee stating their need for more PATRIOT PAC–3 and Aegis BMD inventories and continued development of THAAD.

Dr. McQueary, I am interested in your assessment of MDA's end-to-end testing. What areas are progressing well and where do you think they could have an improvement?

Last, Mr. Green, I am interested in hearing your perspective on whether the events of the past year have modified our approach to missile defense, and the status of our engagement with our international partners in cooperation on missile defense.

As the chairman has noted, the European missile defense site is a key issue this year. We must understand how this site benefits our security and what we are doing to engage our European friends.

Again, I want to thank you for taking time out of your busy schedules to be with us today. I look forward to your testimony, and I look forward to my chairman calling this hearing because missile defense is one of the most important things that we do.

Thank you, Madam Chairman.

Ms. TAUSCHER. I thank the distinguished ranking member.

He is right. Last year there was an amendment offered on the floor to significantly cut the MDA budget. I am happy to report that he is right. It was defeated by a bipartisan effort. So I think that there has been strong bipartisan support for a strong defensive missile shield.

Gentlemen, you have submitted very comprehensive testimony. We appreciate that, but we would like to get to questions. If you wouldn't mind giving us a short summary, five minutes or less, then we can move to questions. We would appreciate it. All of your statements have been submitted to the record.

General Obering, please begin.

STATEMENT OF LT. GEN. HENRY A. OBERING, III, DIRECTOR, MISSILE DEFENSE AGENCY, U.S. AIR FORCE

General OBERING. Thank you very much, Madam Chairman, Congressman Everett and distinguished members of the committee.

As Congressman Everett stated, on July 4, 2006, North Korea did launch seven missiles capable of striking our allies and our deployed forces in the Western Pacific, and also launched a Taepo Dong 2 long-range missile believed to be capable of striking the Western United States.

Had these launches taken place just three years earlier, we would have had no capability to defend ourselves. This time, because of the efforts of thousands of Americans dedicated to this program, the steadfast support of Congress, and an innovative acquisition strategy that we have been allowed to pursue, we were able to provide the President with an option to activate an integrated missile defense system, a system that I am confident would work effectively.

In November 2006 and January 2007, Iran demonstrated near-simultaneous launches of almost a dozen ballistic missiles and rockets. In fact, the number of foreign ballistic missile launches this year is at a rate double that of last year. This reflects the determination of many countries to acquire these valuable weapons, a value that is generated, by the way, by the historic lack of deployed defenses against them.

The consequences of this vulnerability are significant. A rogue nation could use these weapons for coercion or intimidation. As these missiles proliferate, access becomes easier and missile-capable terrorists could emerge.

Therefore, it is critical that we continue to develop, field and deploy missile defenses to de-value these weapons and protect ourselves, our allies and our friends. To address these threats, we are requesting $8.9 billion in 2008, with more than 75 percent of these funds, or $7.1 billion, going to near-term capabilities and the remainder, or $1.8 billion allocated to develop defenses against threats that may loom tomorrow. If we get this balance wrong, we will be unable to defend ourselves sooner or later.

This budget reflects a three-part program strategy: to maintain and sustain our initial capability; to close the gaps and improve this capability; and to develop options for future uncertainties.

First, we seek $5.9 billion to maintain and sustain an initial capability to defend the homeland against long-range threats and to protect deployed forces, allies and friends against the shorter- to medium-range threats. We intend to complete the fielding of up to 44 long-range interceptors in Alaska and California; deploy up to 132 sea-based interceptors on 18 Aegis ships; and deploy 2 mobile terminal high altitude area defense units with 48 interceptors.

Sustaining this capability is now approaching $1 billion a year. To effectively utilize these capabilities, we need to expand our command, control, battle management and communications elements, both at home and abroad. This element is the centerpiece of our system and without it there is no integrated layer of defense.

Second, we seek $1.6 billion to close the gaps and improve our capability to keep pace with growing threats. This objective includes the fielding of 10 long-range interceptors and a mid-course radar in Europe. We have entered into discussions with Poland and the Czech Republic to host these assets. These countries represent locations which maximize the coverage of Europe and the United States against an Iranian threat.

At the same time, we have been engaged with our NATO partners and Russia to explain to NATO our missile defense plans and the inability of these sites to threaten Russia's strategic deterrent. Another aspect of the effort to improve our defenses is the development of the land- and sea-based volume kill capability that can defeat the more complex threats that we believe will emerge from North Korea and Iran.

Our multiple-kill vehicle (MKV) program will allow us to engage multiple warheads and countermeasures from a single-threat missile with a single interceptor. Delivering this volume kill capability to the warfighters and for all of our mid-course interceptors is one of our top development priorities.

Finally, we request $1.4 billion for the third component of our strategy to develop options for future threats. In this phase, defenses can destroy an enemy missile when it is most vulnerable. The Airborne Laser is our primary boost-phase program, but we are maintaining the option of using a Kinetic Energy Interceptor as a boost-phase system if the Airborne Laser does not achieve its knowledge points during testing.

In addition, we believe that persistent global detection and tracking will be required to deal with future uncertainties. Our space tracking and surveillance system program and our advanced technology efforts are focused on support of this goal.

Next, I would like to discuss the underlying acquisition approach that has allowed us to rapidly and effectively field a missile defense capability where none existed before.

In January of 2002, based on our test results and the evolving rogue nation threat, MDA was directed to deploy an integrated and layered missile defense as quickly as possible. The Department's traditional acquisition process could not meet this task. In its place, we instituted an evolutionary process called capabilities-based spiral development. This approach gives the agency the flexi-

bility to properly manage risk and therefore rapidly develop, test and field capability to the warfighter, while continually upgrading the system.

As a result, in just over 30 months, since June of 2004, we have in place 17 long-range interceptors in Alaska and California. We have modified 16 Aegis ships for missile tracking, with 7 of those able to launch the 20 sea-based interceptors that we have fielded. We have upgraded three land-based early warning radars, delivered two transformer radars, and one massive sea-based X-band radar, and fielded kinetic control capabilities in Hawaii, Alaska, Colorado, Nebraska, Washington, D.C., and the United Kingdom. Using capability-based acquisition, we have achieved in two and a half years what would have taken two or three times longer with the standard process.

The inclusion of U.S. Strategic Command and other combatant commands in our development, test, and fielding activities has been another key to our success. Our cooperation with these commands and the services is comprehensive and occurs at almost every level. We work with them to define and prioritize new requirements as the system evolves. We have worked with the services to complete an element, transition, and transfer plan to allow them sufficient lead time to budget for operations and support.

MDA's cooperation with the warfighter was exemplified during the North Korean ballistic missile launches this past summer. MDA and the military operators worked side-by-side to transition the system to operational alert. As a result, our country was able to defend itself against a potential threat.

To verify the viability of our system, we have taken on the challenge of realistically testing an enormous, complex system that covers ten time zones and that intercepts warheads not only in the atmosphere, but in space. We have designed a test approach that not only demonstrates the technical maturity of the system, but also demonstrates its ability to provide warfighting capability.

Our test programs involve modeling simulations, numerous element and system ground tests and flights tests with the components operating together under conditions that are operationally realistic. This testing has increased our confidence in the system. In particular, this past September, we conducted a long-range intercept flight test that involved the use of operational crews and operational fire control and fielded software.

We also used operational sensors and an operational interceptor launched from an operational missile field. Over the past year, the Missile Defense Agency conducted more than 35 major tests, successfully meeting our primary test objectives on 14 of 15 flight tests.

Overall, since 2001, we built a record of 24 successful hit-to-kill engagements in 32 attempts. A critical aspect of our test program has been the participation of the directorate of operational test and evaluation in a combined test force. This force merges requirements for both developmental and operational capability testing and works daily with the independent operational test agencies to ensure that they concur with our objectives and processes.

We understand and embrace the importance of rigorous, realistic testing, which is why more than 20 percent of our fiscal year 2008

budget, over $2 billion, has been directed for this purpose. Our test schedule remains very aggressive and is limited not by funding, but by the capacity of our range infrastructure to conduct tests in rapid succession, and by our ability to absorb and incorporate each test lessons into succeeding tests.

For the remainder of this year, we plan to conduct two long-range intercept flight tests, four Aegis flight tests, three THAAD flight tests, an Israel Arrow test and dozens of ground tests. As I discussed earlier, the deployment of ground-based interceptors and an associated mid-course radar in Europe is critical to the defense of our allies and will help protect the United States from long-range tests from the Middle East.

We intend to deploy an initial capability by 2011. Japan remains one of our closest partners in missile defense. In March of 2006, we successfully flight-tested new nose-cone technologies developed in cooperation with Japan. The Missile Defense Agency and the Japanese Ministry of Defense are agreed to co-develop a larger version of our sea-based interceptor, which will improve our defensive capabilities against longer-range missiles.

The upgraded Royal Air Force Flyingdales Radar in the United Kingdom will undergo operational testing this year and we are working closely with Denmark to upgrade the Thule early warning radar in Greenland. We also are continuing to work with Israel to examine a number of options for them to improve their capability to defeat longer-range missiles, as well as to develop new shorter-range missile defenses.

We have now signed cooperative agreements with Australia and Italy, and begun discussions on missile defense collaboration with many other nations.

I am proud that the Missile Defense Agency has provided this Nation with a significant defensive capability within our fiscal constraints. Our acquisition flexibility has allowed us to implement numerous cost-saving measures, such as infrastructure reductions, support systems consolidation and program adjustment.

For example, we have reduced our infrastructure overhead by approximately $1.8 billion from fiscal year 2006 to 2011. More specifically, we saved enough funds from unneeded overhead reduction in the Ground-Based Mid-Course Program alone to purchase four more long-range interceptors.

In closing, I want to emphasize that the threat that we are facing from ballistic missiles is real and growing. Ballistic missile defense is expensive, but the cost pales in comparison to the enormous price that this Nation would pay in lives lost, property destruction and economic devastation from even a single missile attack.

The success that we have experienced in our test program indicates that there is absolutely no reason to slow down our efforts. We have overcome test setbacks and technical hurdles, but thanks to the support from Congress, we are succeeding in our mission.

As we look to the gathering clouds of ballistic missile threats on the horizon, now is not the time to cut back on support for missile defense, but to advance it.

Thank you very much, Madam Chairman. I would appreciate the opportunity to answer your questions.

[The prepared statement of General Obering can be found in the Appendix on page 39.]

Ms. TAUSCHER. Thank you, General Obering.

General Campbell, once again, your statement has been submitted to the record. If you could summarize, I would appreciate it. Thank you.

STATEMENT OF LT. GEN. KEVIN T. CAMPBELL, COMMANDING GENERAL, U.S. ARMY SPACE AND MISSILE DEFENSE COMMAND/ARMY FORCES STRATEGIC COMMAND, U.S. ARMY

General CAMPBELL. Madam Chairman, Congressman Everett, distinguished members of the committee, thank you for your ongoing support of our warfighters and for the opportunity to appear before this panel.

This committee has been a strong ally of the Army and the missile defense community. I will discuss the role of the warfighter in operating the system and our role in the development process with MDA.

In one of my roles, I serve as the Joint Functional Component Command for integrated missile defense under the United States Strategic Command, General James E. Cartwright. In this joint role, I am responsible for directly supporting the command of the United States Strategic Command to globally plan, integrate and coordinate missile defense operations.

The Joint Functional Command operationalizes proven capabilities from the Missile Defense Agency, develops global missile defense plans in collaboration with the geographic combatant commanders, and we conduct cross-geographic combatant commander exercises to ensure that commanders, staffs and missile defense crews are prepared to employ the fielded ballistic missile defense system.

In July 2006, we successfully placed today's fielded capabilities on alert in response to a credible threat from North Korea. Our response to this threat demonstrated our ability to operate the system on a sustained basis and dynamically plan, integrate, and coordinate military operations across three combatant command headquarters, as well as other government agencies.

Specifically, the Joint Functional Command coordinated mission activity across the combatant commands. And, Madam Chairman, during your visit to the Joint Functional Command a few weeks ago, you saw first-hand the maturity of that operation. Army forces under Northern Command (NORTHCOM) operated the Ground-Based Mid-Course fire control system.

Air forces under the control of STRATCOM operated long-range and space-based sensors. The Navy forces under the operational control of the United States Pacific Command operated Aegis long-range search and track radar systems in the Sea of Japan and the Pacific Ocean.

And the Defense Intelligence Agency (DIA) oversaw the employment of the Cobra Dane radar at Shemya, Alaska. As was demonstrated this past summer, the joint team is trained and ready and operating the Ground-Based Mid-Course System today. In my view, our success during last summer's contingency served as a tes-

timony to the effectiveness of our warfighter exercise program, as well as the Missile Defense Agency's test program.

During the past 12 months, we have effectively planned and conducted 3 major combatant command-level exercises and participated in several Ground-Based Mid-Course System tests, both in defining objective and crew-level direct participation. The exercises, combined with the test participation with MDA, have enabled us to improve our staffs' and crews' proficiency in operating a missile defense system and increased our confidence in the effectiveness of the fielded missile defense capabilities.

Lessons we learned during these activities we use to improve our operating concepts for both the planning for and the execution of the missile defense mission. We anticipate significant advancements in the Ground-Based Mid-Course System over the next four years, with potential deployments to the European-based sites, deployments we see as essential for improving the defense of the homeland and extending coverage to our forward-deployed forces and allies.

We have initiated planning with the European Command (USEUCOM) staff and intend on sending a joint team made up of combatant command representatives, the Missile Defense Agency, and others to work closely with European Command in developing a concept of operations, a logistics plan, and an infrastructure plan.

As we look to the future, we will continue to advocate for system improvements that narrow and close capability gaps and improve system performance. U.S. Strategic Command has created the warfighter involvement process, a disciplined methodology for capturing combatant commanders' desired capability and delivering them to the Missile Defense Agency. Annually, we provide MDA our input in the form of a prioritized capability list.

This is a direct means for warfighters to influence and shape both present and future missile defense capabilities. As examples of our priorities, we have advocated for improvements in command and control and further development of capabilities such as the multiple-kill vehicle. It will provide us a range of capabilities for meeting threat advancements.

I mentioned earlier that I have a joint role as Commander of the JFCC. My other responsibility is the Army's Senior Commander for Space and Missile Defense. This entails ensuring our warfighters are provided with enabling space and tactical defense capabilities to defeat theater ballistic missiles. To enhance current capabilities, the Army is continuing its transformation of air and missile defense forces to meet increasingly sophisticated and asymmetric threat environments encountered by today's warfighters.

Meeting the short-range ballistic and cruise missile threats continue to grow, especially in light of the ever-increasing proliferation of missile defense technology. To address these threats, the Army is transforming its air defense force from its current separate systems architecture to a component-based net-centric, integrated air and missile defense system of systems that include such resources as PATRIOT, the surface-launched medium-range advanced air-to-air missile, and an elevated net sensor, and in the near term, the Terminal High-Altitude Area Defense system.

This transformation of missile defense capabilities will allow joint-force commanders to scale and tailor assets and forces based upon the specific operating environment in which they are employed. With the help of this committee, we will continue forward progress in developing, deploying and fielding an integrated missile defense of our homeland, deployed forces, friends and allies.

I appreciate having the opportunity to speak on these important matters, and ask that my written statement be submitted for the record, and look forward to addressing any questions you or other committee members may have.

[The prepared statement of General Campbell can be found in the Appendix on page 68.]

Ms. TAUSCHER. Without objection. Thank you, General Campbell.

Dr. McQueary, welcome.

STATEMENT OF DR. CHARLES E. MCQUEARY, DIRECTOR, OPERATIONAL TEST AND EVALUATION, U.S. DEPARTMENT OF DEFENSE

Dr. MCQUEARY. Thank you very much. It is a pleasure to be here today to have a chance to give you an operational test and evaluation (OT&E) perspective on ballistic missile defense.

I will be very brief. I do have four quick points that I want to make.

First, I want to review quickly what I believe the successes are of this past year for ballistic missile defense systems (BMDS). Second, I would like to give you my current assessment of the capability of BMDS. And third, I would like to provide a status of recommendations in the fiscal year 2005 and fiscal year 2006 annual reports published by us. And fourth, I will discuss the factors that will limit our ability to be able to provide an aerial block-six assessment as required by the fiscal year 2006 National Defense Authorization Act.

I am going to summarize the first point about missile defense and simply say missile defense had a very good year of testing, and I will not go into the specifics because that information is included in the record.

On the second assessment, I think it is worth saying a few words about that. In the 2005 hearing, DOT&E reported that the integrated ground test results indicated the test bed had the potential to defend against a limited attack under certain conditions.

However, the difficulties in the flight test program delayed confirmation of that capability. During the 2006 hearing, DOT&E reported that the results of the ground test demonstrated that integration, interoperability, tactics, doctrine and procedures were adequate to increase confidence in these aspects of the system.

The MDA testing program during 2005 was adequate and appropriate to the developmental maturity of BMDS. Today, I can state that BMDS has demonstrated a limited capability against a simple foreign threat. Coupled with the success of other element and level testing and MDA's integrated ground tests, the BMDS is definitely maturing. My assessment is bolstered by the fact that MDA is increasing the operational realism of each successive test, and I think that is a very crucial point.

Madam Chairman, in your invitation to address the committee, you asked me to provide an assessment of MDA's implementation of the recommendations in the last two DOT&E annual reports. That is what I want to quickly do now. There were 26 recommendations in the fiscal year 2005 annual report. Only four recommendations are still open, and MDA is acting on each of them. Two involve ongoing data collection, and one involves a future test schedule, and one deals with the test planning process.

There are 15 new recommendations in the fiscal year 2006 annual report. Many of these new recommendations involve demonstrations of specific capabilities during actual intercept tests. MDA is actively considering these recommendations and has already added several to the test schedule.

As you know, I only advise MDA on its developmental test program. However, I am satisfied with MDA's response to the recommendations in our annual reports, and I am pleased that General Obering and his staff recognize the value of our suggestions and recommendations. A more capable MDS is our mutual goal.

And then the fourth item is, despite the successes, BMDS is still maturing as a system, which makes it difficult for me to assess block-six capability as required by the fiscal year 2006 National Defense Authorization Act. First, to be confident in my assessment of effectiveness, I need validated models and simulations for the BMDS that only exists today because MDA doesn't have enough flight test data to anchor them.

I suspect General Obering and I will have a chance to comment more upon that because I think that is a key point. MDA, the multi-service BMDS operational test agency team, and DOT&E personnel are working together to solve this problem. I am quite pleased with the way that is progressing. However, there may be insufficient time to fix this problem before we finalize the block-six report, which we will finish at the end of this year.

While these models and simulations will be essential to proving the operational capability of BMDS, we cannot use models and simulations as substitutes for live testing. Both General Obering and I agree on this important issue. MDA's testing must be sufficient to have high confidence that the models and simulations are valid representations of the actual performance and capabilities of BMDS.

Second, I will have difficulty assessing suitability, whether reliability, maintainability, or availability of the system. BMDS has not operated long enough to gather statistically significant data on its RAM, reliability, availability and maintainability, although the tests to date are very encouraging. MDA and the warfighters are collecting the data, but the amount may be insufficient to reach confident conclusions about the suitability, and this gets into statistics and things of that sort that I am alluding to.

So in conclusion, MDA expects a good year of its ground and flight test programs. Individual element successes indicate their capabilities. Integrated ground testing of the BMDS is demonstrating that the warfighters understand and can operate the system confidently and effectively. There is still a long way to go, but MDA's disciplined and principled approach to flight and ground tests is starting to pay real dividends.

That concludes my remarks. Thank you for the opportunity to be here.

[The prepared statement of Dr. McQueary can be found in the Appendix on page 88.]

Ms. TAUSCHER. Thank you, Dr. McQueary.

Deputy Assistant Secretary Green, welcome back.

Secretary GREEN. Thank you.

Ms. TAUSCHER. It wasn't too long ago that you were sitting on this side of the table.

Secretary GREEN. I can't help but notice that the view is different from this side of the table. [Laughter.]

Ms. TAUSCHER. It is a little different from this side, too, but we are happy to have you back, and thank you for your longstanding service to the American people. If you could summarize your testimony, we would appreciate it. Your statement is in the record. Please proceed.

STATEMENT OF HON. BRIAN R. GREEN, DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR STRATEGIC CAPABILITIES, U.S. DEPARTMENT OF DEFENSE

Secretary GREEN. Chairman Tauscher, Ranking Member Everett, members of the subcommittee, it is a pleasure to appear before you today to discuss the policy and strategic rationale underpinning the fiscal year 2008 missile defense budget request. I would like to thank the chairman and the ranking member and all the members of the subcommittee for their support of missile defense.

Upon taking office in 2001, President Bush directed us to field an initial missile defense capability by 2004 and to improve it over time to meet the changing threat and to take advantage of emerging technology. He also directed us to extend the benefits of missile defense to our friends and allies.

I would like to discuss today our progress in meeting this direction and focus on an effort that is key to enabling us to meet these goals: the deployment of U.S. missile defenses in Europe. Missile defense continues to be one of the Administration's highest priorities, driven by rapidly evolving missile threats. Aggressive and unpredictable adversaries, such as Iran and North Korea, continue to challenge our notions of deterrence and defense.

Surprise—strategic, tactical and technical—is an expected feature of the post-Cold War strategic environment. In this environment, we can no longer rely solely on offensive capabilities to deter our adversaries, and must have other options, including an active, layered defense that both reinforces deterrence and hedges against its potential failure.

I am pleased to report that we have made substantial progress and rapid progress in meeting the President's direction to deploy missile defense capabilities. We now have ground-based interceptors deployed in Alaska and California; sea-based interceptors deployed aboard the Aegis ships; more PATRIOT PAC–3 interceptors; sensors on land and sea and in space; an evolving command and control system; and trained warfighters on-station. My colleagues seated with me at the table today, who represent the developers, testers and warfighters, deserve the Nation's gratitude.

We are also making progress in missile defense cooperation with our allies and friends. Today, 15 countries, including 9 NATO countries alone, are engaged in missile defense efforts of some kind, whether by hosting key facilities or assets on their territory, or actively discussing this possibility; pursuing R&D programs; or signing cooperative agreements with the U.S. for maintaining capabilities. In addition to the U.S., the list includes Australia, the Czech Republic, Denmark, France, Germany, Italy, Israel, India, Japan, the Netherlands, Poland, Taiwan and the U.K.

In January of this year, President Bush directed us to proceed with negotiations to base U.S. long-range missile defenses in Europe. These defenses are intended to counter the increasing Middle Eastern missile threat. Our intelligence community (IC) assesses that Iran would be able to develop an Intercontinental Ballistic Missile (ICBM) capability before 2015 if it chose to do so, and we must start now in order to address this threat in a timely manner.

Current plans call for basing in Poland 10 ground-based interceptors, similar to those currently deployed in Alaska and California, and a mid-course radar in the Czech Republic. An existing radar at the Reagan Test Range will be refurbished and moved to the Czech Republic for use as the European mid-course radar.

Negotiations are ongoing and pending a successful outcome, work is planned to begin at the sites in 2008. These missile defense assets would be integrated with existing radars in Flyingdales, United Kingdom and Thule, Greenland, as well as the U.S. Ground-Based Mid-Course System.

The deployment of U.S. missile defense assets in Europe has many benefits. It would be capable of intercepting not only intercontinental ballistic missiles, but also intermediate-range ballistic missiles launched out of the Middle East. The U.S. goal is to optimize defensive coverage of both Europe and the United States. They would provide a second layer of defense for the United States.

With the protection afforded by these U.S. defensive capabilities in Europe, NATO member states could resist attempts by hostile states to intimidate or coerce the Alliance or its members from taking actions in the coalition. Strengthening our European allies and the NATO Alliance in turn enhances U.S. security. Such defenses would provide additional decision space for national leaders, including the President, for example, by allowing them to delay or defer resorting to offensive responses to an attack.

Missile defenses provide another avenue for burden-sharing and strengthening relationships with important allies. When negotiations are successfully concluded, Poland and the Czech Republic would be providing a significant contribution to the collective security of the NATO Alliance by hosting the missile defense (MD) assets.

I also want to comment briefly on benefits derived specifically from the basing mode that we have chosen to pursue, that is, ground-basing interceptors in silos. Many of our missile defense systems such as Aegis and PAC–3 are mobile or transportable. The advantage of mobility is flexibility. We can move assets into place as circumstances warrant. But there is also an important advantage to ground-based silos. That advantage is permanence. If we

field long-range interceptors in silos in Europe, we will have the capability that is always there, before and during a crisis.

Both our allies and potential adversaries will know with certainty that a missile defense capability is in place. These missile defense assets will then be able to both assure allies and deter and dissuade adversaries at all times once they are fielded.

Providing Russia with transparency and predictability in their missile defense policy plans and programs is certainly in the interest of the United States. As General Obering indicated, we have been and will continue to keep Russia informed about the status of our programs and decisions. We will also continue to explore the possibility of additional confidence-building measures and seek opportunities to cooperate with Russia on missile defense in the future.

I mentioned previously that a European interceptor site will provide long-range missile defense coverage to many NATO allies. Missile defense has been a topic of discussion and debate at NATO for quite some time, and the U.S. plan to begin fielding missile defense elements in Europe has served to focus and intensify these discussions.

The Alliance has already taken several important steps demonstrating its support for missile defense, with its active layered theater ballistic missile defense, or ALT–BMD program, the Alliance has decided to develop the capability to defend its deployed forces from shorter-range missile attack. The program office established in 2005 is headed by a Frenchman and his deputy is an American.

Recognizing that there is also a growing threat to NATO territory, the Alliance agreed at the 2002 Prague summit to initiate a NATO missile defense feasibility study to examine the defense of Alliance territory and population centers from ballistic missile attack. This study was completed and presented to the 2006 Riga summit. At Riga, the Alliance endorsed the study's conclusion that defense of Alliance territory and population centers is technically feasible.

Although the Alliance has yet to make the collective decision to pursue a continental defense, a number of individual allies have demonstrated support for long-range missile defense. For example, Poland and the Czech Republic have expressed interest in hosting long-range missile defense assets. The United Kingdom has agreed to an upgrade of the Flyingdales early warning radar, and Denmark has agreed to a similar upgrade of the early warning radar at Thule, Greenland.

In conclusion, we have made great progress in meeting the goals that the President set for us over four years ago, and we continue to press forward with the proposed deployment of U.S. missile defenses in Europe.

Thank you for your attention and the opportunity to appear before you today. I look forward to your questions.

[The prepared statement of Secretary Green can be found in the Appendix on page 94.]

Ms. TAUSCHER. Thank you, Mr. Green.

General Obering, senior Administration officials have said that because the threats we face today are unpredictable, the United

States needs combat systems that can quickly adapt to new threats. With regard to missile defense, isn't there an inherent flexibility in having mobile missile defense platforms that can move to where the threats are?

And furthermore, given the tight fiscal environment we will find ourselves in in the next coming years, doesn't it make sense to develop a missile defense system that we could use in multiple areas of the world? And to take it just a step further, don't mobile systems provide a better bang for the buck?

General OBERING. Madam Chairman, actually what we are developing and deploying and fielding takes heavily into account that mobile capability that you talked about. It is true that the flexibility of mobile forces is very attractive, and that is why we have invested a considerable amount of money in that in systems such as the THAAD, the Aegis, et cetera.

Now, these systems, though, are to work in conjunction with typically fixed-based sensors and assets that we can take advantage of in a more expeditious manner, that typically you have more room for performance. For example, carrying around a ground-based mid-course interceptor on a ship would not be very practical. So the range and the reach that you get with those land-based, fixed-silo interceptors is very, very crucial to that overall integrated capability.

We are in fact, as I said, investing in the more mobile systems. That is one of the reasons why we have invested as we have in our larger version of the Standard Missile–3 (SM–3) that we are co-developing with Japan. That will have a long-range intercept capability. It will have a much smaller defended-area footprint than a land-based interceptor, but it does provide that flexibility.

But this works in combination, as Brian Green said. There is a persistence to land-based assets that you like to blend with the mobile-based assets, so that allows you to surge in certain areas where you may need to, but it also gives you a 24/7 capability that often is more expensive when you use mobile assets. That is the case. We went through a cost-benefit analysis and we looked at the different alternatives for, for example, a European site for extension of coverage to allies and friends.

The most effective would be the land-based interceptors that we talked about. They could be surged by the shorter-range, and in fact shorter-range defenses could also be able to interlace with that to provide full coverage of all of our allies and friends in the European area. So we think that we are actually following that advice.

Ms. TAUSCHER. What about mobile KEI?

General OBERING. Mobile KEI is an option that we are still pursuing. That is the option, as I mentioned, to the Airborne Laser. It is the option, as opposed to the primary program, because in the boost phase, the Airborne Laser is much more flexible. It can defeat all ranges of missiles. The KEI would be limited to just the lower range. So we are trying to maintain that option in our program.

Ms. TAUSCHER. Thank you, General.

Secretary Green, I listened to your testimony very clearly, and I don't dispute that there is support in Europe and certainly bilateral support among the allies that you mentioned who, coincidentally,

are NATO, to working on a cooperative missile defense system. But my concern is that the Administration has made a decision to conduct the deployment through these bilateral channels, not through NATO.

I would like to, if you could tell us why there is no NATO platform negotiation. We are just consulting with NATO, if I understand the terminology that is being used. Why aren't we looking for a NATO endorsement, so to speak, of deployment? If not, why not?

Secretary GREEN. I guess I would make a couple of observations. First, NATO as an Alliance develops very few of its own capabilities. Most of its capabilities are actually developed by individual nations or smaller groupings within NATO that develop a particular capability, and then offer those capabilities in the context of the NATO Alliance. So the bilateral approach here is very common in NATO and I think a reasonable one in this circumstance.

Second, I would note that NATO is a consensus organization, which means that we would have to try to achieve unanimity within the NATO context to get NATO to actually endorse a U.S. effort.

I think it is fair to say that there is strong support in NATO and that that support is growing over time, but to achieve unanimity in any organization, much less one as diverse, as you know, with you having a prominent position at the NATO and Congress, getting unanimity in any organization like NATO is a very difficult challenge. In essence, what such an approach would do would allow any one nation within NATO to veto a U.S. initiative that we believe is very important to U.S. national security, in addition to European security. I think we would be very reluctant to go down that path.

We certainly have a strong NATO foundation for this effort. We have consulted extensively with our NATO allies, both in the NATO context, the North Atlantic Council, and bilaterally with our NATO allies. Those consultations continue at a very high pace. We had General Obering over in NATO just last month. He is going over again next month. We have a Missile Defense Agency policy team over in Europe this week. Our under secretary is over in Europe this week talking about missile defense with our NATO allies. So this is, I think, a strong foundation and one on which we are building.

Ms. TAUSCHER. I understand your point. Let me just tell you that my concern is that it is easy to pick off a NATO ally or two almost anytime you want to, and getting to 26 is very difficult, although we did do it successfully when they took over for the United States specifically in Afghanistan. But we do have also I think a very well developed commitment to interoperability. We do have a preeminence in this technology and in this science.

So it would seem to me that I would feel a lot more comfortable if the Administration was negotiating directly with NATO. It is tough to get to 26, I understand that, but in the end it seems to me that that is really what we want to be doing. We want to have a NATO framework. We want to have clearly the opportunity to have interoperability. We don't want there to be a sense that we picked off some closer friends perhaps and got some easier, closer allies to agree, but then perhaps there is a competing system out there that could cause us some problems later on.

So as one member and as the chairman, I would much prefer that we had a sense that this was a NATO framework that we were operating in, and not just a bilateral.

I am happy to yield time, as much as you would like to consume, to the Ranking Member, Mr. Everett.

Mr. EVERETT. Thank you very much, Madam Chairman.

Ms. TAUSCHER. You are welcome.

Mr. EVERETT. So much, and so little time.

General Obering, let's talk a little bit, and perhaps some background to bring up ABL. Some of our members may have followed it from the very beginning. Having visited, I understand it is a very complicated piece of equipment. Would you describe where we started with ABL?

And with the distinguished chairman of the Budget Committee here, I am not going to pretend that we are not over-costs on the ABL. We certainly do not have the aircraft for the amount of money that was originally projected.

However, I would point out the ABL is not alone in that situation. Just about everything that we have done in the procurement and development has gone over budget and over time. But if you will start and just very briefly describe what the original concept of ABL was, and where we are at this point, including the latest test we had last week.

General OBERING. Yes, sir. First of all, what I will do is I will roll back about three or four years ago. At that point, the Airborne Laser was being approached in a classic acquisition program fashion, sir. There were requirements that they were trying to strive to meet. They had to think through supportability, maintainability—all of what we call the entities associated with a major acquisition program.

There was only one problem with that. They had not balanced the resources to focus effectively on what was the critical contribution that they make to a missile defense system. That critical contribution is to be able to use the power of light, directed energy, at the speed of light, to destroy ballistic missiles very, very rapidly. And so they were out of balance in terms of how they had focused on that task.

What my predecessor and I did, General Kadish, is we restructured that program to use the knowledge-based, knowledge-point approach to refocus the program on being able to accomplish its major contribution to the system. So we laid out, along with the program manager, the phases that we wanted to see from that program.

The first one was that we consider terminating the program unless they could generate, first, light from that laser, from the high-energy laser. It was in a 747 mockup on the ground that had all the constraints of the 747, and we told them that they had to do that. They achieved that milestone in November of 2004. Since then, they lased over 70 times with that laser.

Another key knowledge point was to be able to use an optical fire control train within the aircraft to be able to control the beam while it is being fired. So we set up a series of flight tests with an optical bench on the aircraft. It had its first flight back in December of 2004 and achieved that knowledge point.

Now, since that time, if I can fast forward a little bit, they have been making tremendous and very steady progress. It has been tough, but they have been making great progress. The next major knowledge points that they are to achieve is there are actually three lasers on board the aircraft.

There is a tracking laser that is used to provide precise tracking information into that fire control system; there is an atmospheric compensation laser that goes out and measures the distortion in the atmosphere and feeds that information back so that the mirrors on board the aircraft can deform, so that when the high-energy beam hits, it leaves the aircraft deformed and uses the atmosphere as eyeglasses lenses, so to speak, to refocus the beam on the target.

We have now installed the tracking laser and the atmospheric compensation laser on the aircraft. It has been back in flight now for the last several weeks. It is achieving the knowledge points in terms of being able to track that tracking laser, and we anticipate here in the next two weeks it will be able to fire the atmospheric compensation laser out the nose.

So we did use the tracking laser this past week to track a target 75 kilometers away and we are now assessing that and moving toward the knowledge points that we hope to finish achieving this summer. So that program has come a tremendously long way. It offers promise for the future in terms of directed energy and being able to use directed energy as a weapon on a large scale.

So a lot of lessons learned that we are learning from this program can be applied to many other directed energy programs should the Department choose to go that way for the future. We are not out of the woods yet. We still have to reach the knowledge points that I talked about this summer.

We will then take the program, the aircraft back down after the flight test. We will open it up and we will put the high-energy laser on the aircraft and get back into the air next year, and look for a shoot-down of a boosting missile in 2009.

Mr. EVERETT. There are benefits to ABL that we can't go into in this setting. I would appreciate the opportunity, and perhaps the chairman, at some point in time I might meet with you all to talk about that.

In staging the ABL, I assume that you could take three aircraft and operate 24/7 in those three aircraft. I understand the 747 has long legs on it, but is there a staging problem to be able to actually operate 24/7 with three aircraft?

General OBERING. No, sir. In fact it would operate not unlike what we do now with the aerial controlled aircraft, the AWACS, or with the Joint Stars aircraft. That concept of operations (CONOPS) is fairly well defined. Actually, the program office has been working with air combat command to go through and look at those CONOPS and they have been very well engaged on that. So this idea of full deployment when you have indications and warnings to be able to set up an orbit, all of that has been thought through.

As you say, this is not something that you would have flying 24 hours, 7 days a week. It goes back, Madam Chairman, to your comment about flexibility and mobility assets. So we don't expect 24/7 coverage from those types of assets, but we do expect that we can

use them in indications and warnings, and scenarios at surge, and that is exactly the way that we would envision ABL being used.

Mr. EVERETT. And KEI, could you bring us up on KEI?

General OBERING. KEI was the product of a Defense Science Board recommendation to the Missile Defense Agency back in 2002 that because the Airborne Laser was very technically challenging, that there was needed an alternative to it. So they recommended a Kinetic Energy Interceptor program. That is what we have been embarked on for the past several years.

It has also made great progress. It achieved its knowledge points. Of course the contribution it gives to the ballistic missile defense system is not directed energy, but very rapid acceleration. So if we can demonstrate a very rapidly accelerating booster flight, then that is the technical hurdle that we are after with that program. I am happy to say that they have had successful fires of the first stage and the second stage of that interceptor.

We are going to continue that fire program this year, and go for the first flight of that booster in the fourth quarter of 2008. So it offers an alternative should the Airborne Laser not prove out technically or prove out to be too operationally unsuitable or unaffordable in the long run. That is also part of our knowledge point in designs. So we are still maintaining that option, as I mentioned earlier, for the KEI program.

Mr. EVERETT. Briefly, General Obering, how much does MDA invest in testing? What percentage of the MDA's overall budget is for testing?

General OBERING. There is about 20 percent. It is about $2 billion a year in 2008 budget. It is a significant portion because obviously these are very complex systems. They span many time zones. We have to use range assets that can operate in the atmosphere as well as in space over long ranges. So these are very expensive tests, but we are investing heavily in them.

Mr. EVERETT. General Campbell, how does the budget request reflect STRATCOM's prioritized capabilities list?

General CAMPBELL. Congressman Everett, based on what we have given MDA in terms of priorities, right now he is meeting those key capabilities that we have asked him to field in the upgrades to the existing system. So as best we can tell right now, it seems appropriately balanced between development and sustaining those elements that have already been fielded.

Mr. EVERETT. Thank you.

Madam Chairman, I am going to wait for a second round. Thank you.

Ms. TAUSCHER. Thank you, sir.

I will yield five minutes to the gentleman from Washington, Mr. Larsen.

Mr. LARSEN. Thank you, Madam Chairman.

First off, General Obering, good to see you again.

This first question is about space tracking. To the extent you can answer the question, there are $331 million or so in the budget for space tracking for the first two demonstrations. There is also money in for follow-on satellites, presumably for a 2016 or so launch.

The question I have, it is an obvious one. We have not yet launched the first two, the experimentals. Are you fairly confident that those are going to work as you would hope so that you ought to be asking for money for the next two, for 2016? Can you talk a little bit about your relative confidence in that? It seems we are getting ahead of ourselves on the second two, if you don't know about the first two yet.

General OBERING. Actually, we have the two demonstration satellites that you talked about that are going to go up later this year. Now, we believe that we will learn a lot from that. The purpose, by the way, for the rest of the committee, the purpose of these satellites is can we provide a precise-enough track from space to be able to engage an enemy missile on that track alone.

Of course, that goes back to Madam Chairman's comment about flexibility and mobility. That gives us the ability to have persistence, in this case, global protection in tracking. That is what we hope to learn from. Now, with any system, there is infrastructure to support those demonstration satellites, so we have to operate those.

We are going to experiment with those and we have to have the command and control capabilities. All of that is included in that budget request. We also want to begin to take lessons learned from this as we go along, to be able to feed that into the follow-on system that you talked about.

Unfortunately, spacecraft in my mind still take too long to develop, but that is the cycle that we are in. So even though it sounds like a long time from now to 2016, it is not. In space terms, that is virtually around the corner. So we are going to be using a lot of the folks that will be gaining that knowledge, and being able to incorporate that into some of our system engineering planning and early architecture work for that system.

Mr. LARSEN. Thanks for that answer. I will probably have some follow-up.

I want to get to General Campbell with some questions about Medium Extended Air Defense System (MEADS), if I may.

General, good to see you again. It was a pleasure to visit you down in Alabama.

With regards to MEADS, I just had a few questions. After I got back from the trip to Huntsville, some questions came to mind, and I delivered them for the record, and got some answers back. I had some follow-ups on that. One of the questions I had was of the management challenges and management structure to the MEADS program and what that has meant for its implementation.

The answer that I got back was that now the German and Italian counterparts are meeting next month to discuss the MEADS design and development program process and some of the issues related to that. It struck my mind, is that an indication that there are changes that do need to take place? Or is this just a checking-in with each other to make sure things are moving forward? What is the progress of this relationship with the Germans and Italians in implementing MEADS?

General CAMPBELL. Sir, I am not the developer of the program, but from what I understand, if we look at schedule and budget, I have not observed any outstanding problems. The measure of suc-

cess for us, from the warfighter's perspective, will they equip us as they promised?

Right now, the first unit equipped stands for fiscal year 2015. I am told that they are still going to meet that timeline. So if there are internal management problems, at least at the present time it has not affected the delivery dates of first unit equipped.

Mr. LARSEN. Okay. I will just ask this question for the record, if you have an answer for this one as well we will go with that. Another question I had about any specific recommendations, and a response came back that NATO MEADS management agency intends to increase its oversight and management activities of the MEADS contractor team in the coming months to ensure the upcoming P.R. scheduled for third quarter stays on schedule.

I am all for oversight. It indicates to me that it looks like there is a need for increased oversight. Otherwise, the recommendation probably wouldn't have come up. Are you aware of why we need to increase management and oversight within the U.S. contractor team?

General CAMPBELL. Sir, I am not aware, so we will take that for the record.

Mr. LARSEN. I appreciate that.

Dr. McQueary, as the test and evaluation person here, are you looking at MEADS or are you looking at the MDA side of the house?

Dr. MCQUEARY. We are looking at MDA, but I would also hasten to say we try to stay abreast of what is going on with the components that are currently in MDA, or will be eventually included in MDA. My personal knowledge of MEADS is not sufficient that I could give you any further insight, but I would be happy to look further into it and provide information if that would be helpful.

Mr. LARSEN. Yes. I will get back to you on that. Thank you very much.

Thank you, Madam Chairman.

Ms. TAUSCHER. Mr. Larsen, would you like a question on the record for Dr. McQueary on MEADS?

Mr. LARSEN. Yes, I would.

Ms. TAUSCHER. Excellent. Thank you.

At this time, I am very happy to yield five minutes to the gentleman from Arizona, Mr. Franks.

Mr. FRANKS. Thank you, Madam Chair. Thank you very much.

And thank you, gentlemen, for all that you do for this country.

General Obering, I have not had a chance to publicly congratulate you on some of the successful tests that you had with the ABL here recently. I think that is a milestone and a great credit to all the work that you do.

Having said that, the distinguished ranking member has covered that to a large degree, but I think that this is a very, very important program in that it has so many other applications for the future, even beyond missile defense.

Related to space-based defenses, we last seriously looked at that around 20 years ago. Since then, a lot of things have changed. The Soviet Union and the United States were really the only main players in space at that time, but that environment has changed. The threats have changed. The capabilities have changed, and just the

use of space has changed since then. I believe that it is very appropriate for us to begin to refocus on those concepts in the environment that we are in today.

General OBERING. Sir, as you may know, we have included a very small amount of money, about $10 million in our 2008 request out of the $8.9 billion request. But we think that it is prudent to begin to lay the foundation for experimentation and to answer some questions that obviously need to be raised if the United States opts to pursue that direction.

The policy foundation for this was laid out in the national space policy that was signed out last year. What we are trying to do from an MDA perspective and a developer's perspective is to try to inform the debate that we know should occur and will occur regarding those capabilities. As you say, much has changed, but we also need to understand what is left to be addressed and what are the questions surrounding that.

So this very small amount of money is to allow us to begin interaction with industry, to begin to exchange concepts, to understand where we are with the maturation of components that could be used in this regard. The vast majority of what we would need to do in this regard, in this experimentation, does not even involve launching anything into space.

We can answer that here on the ground with models and simulations, that type of thing. That is the kind of activity that we think would be pretty well covered in a budget request to make sure that we fully inform the Hill of what we think is important.

Again, it goes back to the flexibility that Madam Chairman talked about, that gives you flexibility for future uncertainties because we don't know what threats we may face in 15 or 20 years. As I stated earlier, unfortunately in space terms, that is not a very long time. So being able to inform us to date is one of the reasons why we included that money in our budget request.

Mr. FRANKS. Thank you, General.

Just to be very candid with you, the $10 million is not a large amount given the size of the Department of Defense spending. Given the nature of what you are studying, it seems very prudent to move forward with that. From our perspective, it seems that that amount should be increased. I would like to see us have the capability not 20 years from now, but in the near future when we are seeing some of these emerging threats occur, to be able to have space-based defensive interceptors.

With that said, there is a lot of discussion, as you know, about even cutting missile defense so that we can focus more on Iraq and Afghanistan, which are certainly on record as believing that we absolutely must prevail in those theaters. But having said that, I think it is important not to leave out the other potential threats that are ahead of us.

I wonder if you could explain, from your own perspective, what threats you think are out there related perhaps to China or Iran, that might be critical for us to have some progress with the space test bed and the space-based defense in general.

General OBERING. First of all, we know a couple of things. We know we are going to be surprised. We know that. We have been surprised in the past and we believe that we are going to be sur-

prised in the future. As an example, just a month or so before the North Koreans launched the Taepo Dong 1 in 1998, the experts were predicting that that wouldn't occur for five to eight years. So that was a surprise that really caught a lot of folks off-hand.

We don't know what is going to happen with respect to the maturation of the rogue nation threats—North Korea, Iran, and potentially others. We also don't know necessarily where the access of attack may come from 15 or 20 years from now, and being able to try to understand and guess that, and then get defenses in place for us enough at a terrestrial base.

We are seeing right now some of the engagement with our allies in terms of locations or sites for missile defense purposes on territory. We know that that engagement takes a while to be able to accomplish. Having the flexibility to be able to move to space where you do have that freedom of action is something that I think could be generated in order to address those future uncertainties.

I can't predict what those future threats may be. If I could, I could save the American people an awful lot of money, but I can't do that. So what we think is that it is prudent that you keep your options open and not foreclose on those options prematurely or not even embark at all. So that is the rationale behind our thinking of keeping this balance.

By the way, that applies to not just the space test bed, but also to anything we are doing with respect to future capabilities. If we had singularly focused on just near-term capabilities back in the mid–1990's, there would not have been a system to turn on last summer when the North Koreans launched those missiles. There would have been no activation of any operational Ground-Based Mid-Course Defense Program because it probably would not have been in place.

And so, when we fielded the dozens and dozens of phone calls that we received from the media and from other organizations about what can we do to protect the United States, it was a good thing we had an answer ready—yes, we do have a system that could be activated.

Mr. FRANKS. Thank you again.

Thank you, Madam Chair.

Ms. TAUSCHER. Mr. Franks, you are welcome.

Dr. McQueary, over the past several years, ODT&E has played an increasingly larger role in the missile defense testing system. That said, I understand that ODT&E, and you actually mentioned it in your testimony, your existing authorities with regard to the missile defense testing program are primarily advisory. And you state that to be correct.

For the record, could you state what ODT&E's specific authorities are with regard to the missile defense testing program? For example, if ODT&E believes that a certain missile defense element is not working properly, do you currently have the authority to order further evaluation of that element?

And could you just give us a compare-and-contrast of what authorities you currently possess with other major defense programs, versus what your authorities are for MDA?

Dr. MCQUEARY. Thank you. If I don't get all of that, please come back.

Specifically, the authorities were given to us by the Congress in the fiscal year 2002 National Defense Appropriation Act (NDAA), which was to provide an overall assessment. So that is the role, the designated responsibility that we have. We were also given the responsibility to look at operationally realistic tests in the fiscal year 2005 NDAA. And then finally, we were asked to do the block assessment in the fiscal year 2006 NDAA.

Ms. TAUSCHER. Is this kind of a transactional thing? It is almost as if you don't have broad powers. You have almost a transactional per system, per designation of a certain block to do your ODT&E work.

Dr. MCQUEARY. That is the nature of the language.

However, let me say this, and I think this is a really important point. In the time period that I personally have been in the job, for eight months—and so I am sort of the youngest one here in terms of time on the job, not in terms of calendar age—but my interaction with General Obering and his staff has been nothing short of outstanding in terms of the relationship, the willingness to listen to us, the willingness to work with us in order to be able to make sure that we can get the information necessary to provide you, and the Secretary of Defense, the necessary assessments that we can, which really focuses on the effectiveness of the system and suitability of the system. I touched upon those things in my comments.

So from the standpoint of our ability to do the job, I don't have any shortcomings in order to be able to do that. With that being said, however, I would say that is highly dependent upon the nature and characteristics of the people who are in the leadership roles, because it did not work quite as well as that under previous leadership, as you may know and others certainly know.

Ms. TAUSCHER. We are all happy to have General Obering here.

Dr. MCQUEARY. We are all happy to have General Obering here for a lot of good reasons. He has been very forthcoming in every regard. So from that standpoint, I don't feel that there is any shortcomings in our ability to provide you the assessments, and I certainly have not felt any pressures coming from anyone to provide other than forthright, candid assessments for the system.

Ms. TAUSCHER. Could you just briefly compare-and-contrast the scope of your authority in other kinds of major defense programs versus your MDA?

Dr. MCQUEARY. Particularly with the AK–1 programs, and then there are programs that Congress would designate as wishing to have OT&E have the oversight responsibility on. The things that we would do there is provide the final reports on whether a system is operationally effective, and suitable.

We would participate during the decision process as to whether the initial production done on the system. We would provide reports. We don't actually make the decision, but we provide information. And then finally, a major responsibility that we have for the larger programs is providing the beyond a low-rate initial production report, which is the basis for the authorization to go forward to full-scale production.

We don't have those authorizations here, but quite frankly, MDA is a different kind of a program in the sense that it is made up of systems that are relatively mature; systems that are new. So I be-

lieve that under the circumstances that we have, that this is a great opportunity for the country to explore alternative ways of acquisition reform as long as this continues to work.

If I may, one other point and I will stop. I think a high mark in looking back over the history is when they had the two Fairers and MDA had the two Fairers. What the program did then was stop, take a look at what needed to be done, brought in outside advisers, didn't go forward until there was a clear understanding, and that was reported to the Congress and to the Secretary of Defense as to what needed to be done.

I think that is a hallmark of this program, in being able to stop. Because if you have problems, you don't want to just keep going forward. You want to stop and find out because it is important to look at the data and react to that.

Ms. TAUSCHER. Thank you, Dr. McQueary.

Mr. Everett, for a second round of questions?

Mr. EVERETT. Thank you, Madam Chairman.

In regards to General Obering, who is a native of Birmingham, Alabama——

Ms. TAUSCHER. A favorite son. [Laughter.]

Mr. EVERETT [continuing]. And General Campbell, being in Huntsville permanently in June, and my great friend Bud Cramer, who represents Huntsville, and then there is staff in L.A., which is Lower Alabama——

[Laughter.]

We are going to fix these missile defense problems. [Laughter.]

General Obering, you and I have had this discussion before, but will the decisions on ABL and KEI be delayed until ABL's test shot is completed? I believe that test is in 2009. If it is delayed longer than that will you do away with one of the programs?

General OBERING. If the Airborne Laser is meeting its knowledge points and is doing so in a fashion that we believe is conducive to continuing the program, as I said, and that means affordability and everything else, then we would not pursue the KEI as a boost-phase defense program.

On the other hand, if the Airborne Laser does not meet the knowledge points or we believe has a severe schedule risk in doing so, then we would have to exercise the KEI option as the boost-phase defense. So we will not proceed with both of those programs beyond the boost phase for a boost-phase capability. There may be some aspects of the KEI program that are very attractive in terms of that high-acceleration booster that may be incorporated downstream in our silo-based capabilities, but for a boost-phased defense program, we would only carry one of those forward.

Mr. EVERETT. Have we redefined the mission of KEI?

General OBERING. We have not redefined the mission in terms of the contribution of that to the system otherwise. It is still looking at being the alternative for Airborne Laser if it does not succeed as a boost-phase capability. But what is interesting, and it came after the fact, frankly, is that with a very high acceleration booster that could be made available in the mid-course role as well, it becomes—think of it more as a utility player, having a pitcher for example, that is a very, very good at pitching, but also can play in other positions in the outfield.

So that is something that would not be the same cost. Obviously, it would be a much reduced program to be able to do that for the future.

Mr. EVERETT. Dr. McQueary, I believe General Obering said he was paying about 20 percent of his budget on testing.

Was that correct, General Obering?

General OBERING. Yes, sir.

Mr. EVERETT. Is that enough money? Is that enough resources to do the testing we need?

Dr. MCQUEARY. I am not in a position to judge the amount of the money. I am in a much better position to judge the test program that has been put together, and I assume General Obering and his folks have put together a very convincing story as to how much it costs to do that.

I do believe the test program is a very viable test program. I have looked at the program, as I indicated, after the restructuring took place. As I indicated in my remarks, the emphasis is on continually increasing the space in which we are working, and I think that is extremely important.

I do believe that the manner in which they put the program together to give time between tests to thoroughly analyze the information that is gathered from a test, which can be measured in probably billions of digits if you wish to. It is very important to do that. It is important to know what was wrong from the previous test before going on to the next one.

So I think they have put together a very careful and principled test program. As long as it continues to be as successful as it has, I think the country can look forward to a very successful program.

Mr. EVERETT. Sounds like an A-plus to me. [Laughter.]

General OBERING. Could I make a comment, if that is possible, please?

Mr. EVERETT. Absolutely.

General OBERING. I want to comment on what Dr. McQueary said about engagement and tie it back to something you said, Madam Chairman.

There is this perspective out there that in the manner in which MDA does business, even structurally, forgetting personalities, that we don't somehow pay enough attention to OT&E or that they don't have enough authority, so to speak, within our context.

I would say almost the opposite is the case, because what happened is a lot of what happened in the standard acquisition processes. If you stop and think about the timeframes that many of those were grown in, it is where we had large-scale developments, then we had long production runs. Once that program was out the door in that production run, it was gone and you were spending a lot of money on those production rates.

So the whole construct is that the testers had to be the final step of approval before that occurred, and therefore incurred a lot of expense on the part of the government. We are actually engaging them on a much more regular basis and a much longer continuous basis. So this idea of spiral development, one of the aspects of that is spiral testing. So there is not a point at which we say, off you go. We are continually coming back to them and working with them as we go through the maturation of the process.

So that is why it is different. I can see how people get the impression that they do, but it really is a strong engagement that we have with them, and they are fully integrated into all of our processes.

Mr. EVERETT. Thank you.

Madam Chairman, I may have some questions for the record, but I am going to rest for the time being.

Ms. TAUSCHER. Certainly. Yes, sir.

Before I yield to Mr. Larsen, I think, General Obering, you bring up a very important point because I think that in the paradigm change to spiral development, what is obvious is that you have a very good colleague here in Dr. McQueary. I think that there is certainly a sense that I have that there was a lingering question as to the kinds of operational tests and ground testing and flight testing and other things in this new paradigm of spiral development.

When you say "spiral testing," my head starts spinning a little bit more than I think it is meant to, but I think that what is important here is that you have a 20 percent budget of a very large budget, that is including testing. What is tough and difficult for some people to understand and is a challenge that I think you are going to have to repeatedly explain is that that is a very big number. It is a very big number for a deployed system.

The truth is that on the one hand, I think that you are trying to get credit, as you should, for having a lot of money for testing during a time when you have had criticism for not testing enough. The truth is some people will look at you and say, well, what are you testing a deployed system for? That is a lot of money to be spending on a system you have deployed.

So I think the challenge you have, and this is true for everything that is new, is that when you break a paradigm and you do something new, you constantly have to bring people back to a sense that things have to be looked at through the paradigm differently, and that you have challenges to do that.

One of the reasons why I think this has been a very good hearing to have all of you here, and we appreciate that, is that I think that we are fleshing out some of these things, and I think we are getting a better sense for the fact that you can't use old modeling contexts for this. Once you do, you find yourself in terrain that causes a lack of understanding and maybe undue criticism.

I am happy to yield five minutes to the gentleman from Washington, Mr. Larsen.

Mr. LARSEN. Thank you, Madam Chairwoman. I know you weren't saying this. I am perfectly comfortable with your testing. [Laughter.]

When I got on this subcommittee a couple of years ago, it seemed like we were moving far ahead of what we were able to do. General Obering and staff began to break down their testing regimen a little better into a walk, then run, process. I think the result has been a lot more confidence.

I have a question, and this may be more of a future question, but it has to do with the concept of operations, and specifically ABL, but it can even be applied to other assets within the MDA realm. Assuming that at some point in the future, lasing works just as we want it to work. And then we have it on the aircraft. Who owns

that asset? Does that become an MDA asset? Or does the Air Force get that asset?

In the context of that question, I want to ask you about, getting back to Chairwoman Tauscher's first question about addressing mobility of assets in Europe, why choose a ground-based system versus land, mobile or even sea-mobile assets for protection. Who owns these assets? Who makes the decision on their deployment? Because we are still sort of in that testing stage, but we are in an operational phase as well. Who says we need three aircraft to go up in the air? Who says we need to send three Aegis destroyers to place X to take care of this?

General OBERING. Okay. I will try to break that down, and then General Campbell may want to add something here.

First of all, when we get a component or element of the system to a level of maturation that can be operated and supported by a service, typically a lead service is designated and we transfer operations and support responsibilities to that lead service. And then that asset is actually owned in that parlance, for operational purposes, about deciding if it is mobile, where it goes, that is usually owned by the combatant commander who provides that operational control.

What we do, again, is develop them to a state of maturity, and then transition those. Lead service designation, for example, has been made for our forward-deployed radar, for our upgraded early warning radars. We anticipate that it will be made soon for the massive sea-based X-Band Radar. We are getting indications that the Navy will do that. So that is the idea of transitioning and transfer of operations and support.

Now, from an ownership perspective in terms of ongoing sustaining engineering, ongoing development of the asset, we perceive MDA to still be in that role and that responsibility. There is a key reason for that. As I said earlier, we are building an integrated, layered system. We want to make sure that that integration and that layering continues into the future as we continue to upgrade and modify the components. And so we think it is important that MDA stays in that role as the sustaining engineer, so to speak, and the configuration manager of that asset.

Mr. LARSEN. Let me ask this: Does that mean that we will be digging through the Navy budget, and the Air Force budget, and the Army budget as the operational control of these assets moves to either the services or to combatant commands?

General OBERING. It means that they will probably execute that into their O&M lines.

Mr. LARSEN. O&M?

General OBERING. Yes, sir. That is where it would be. It would not be in any RDT&E line or anything like that.

Mr. LARSEN. Can you address your thoughts with regard to Europe and missile-based, land-based, sea-based?

General OBERING. Yes, sir. I will. The idea in the mission to extend, and it is important to remember we have a significant number of deployed forces in the European theater, and Americans frankly are living there as well. So in addition to providing protection for our deployed forces and our allies and our friends, a third site in the European area would also provide protection for the U.S.

homeland as well. It provides redundancy over a majority of the homeland. So that is the "why" we think this is important.

The "when" is urgent because we can't judge the Iranian threat, but we know that it is emerging and most of the "experts" believe that it will be sometime before 2015 that this will occur. I don't know how accurate that is, but I do know that we have to use some criteria.

But when we went through the analysis that says, what should we use for this protection, we looked at land-based. We looked at mobile sea-based and mobile land-based assets. The analysis shows that for the window of vulnerability, so to speak, for the urgency of this, for the coverage that you get, and for the cost-effectiveness, the land-based silos are the right way to go to be able to provide that coverage.

As I mentioned earlier, that doesn't mean that later they can't be augmented by these more mobile assets, but we are a long way from having that capability to be able to cover. In addition, just from a numbers game, it doesn't pan out because to provide the same coverage that you would need to provide——

Mr. LARSEN. That number is in terms of missiles or in terms of budget?

General OBERING. In terms of actual interceptors. For example, to provide the same coverage that you get with these land-based silo missiles, you would need a number of ships around the clock 24/7 to provide that persistent coverage, and then you need a number of ships just like it is typically three to one of Airborne Laser to one orbit.

It is the same type of thing for a ship. So now you are tying up anywhere from 12 to 15 ships, depending on the locations, to do this mission. It is not very cost- or operationally effective. The shorter-range coverage that would be provided by, for example, a modified and much improved THAAD missile, the definitive footprint is much, much smaller, and there are problems there with respect to some of where it does the intercepts for the long-range. I can't go into any more detail than that.

Suffice it to say, we looked at all those options when we went through this analysis, and the location in terms of the Czech Republic and Poland, as well as the methodology by which we are doing this, was optimized.

Mr. LARSEN. Yes.

General CAMPBELL. Congressman Larsen, may I add? On the concept of operations, the Missile Defense Agency will develop a concept usually at the platform level, how that particular platform works. As we see the capability develop and we understand the operational parameters, then we work to integrate it into an overarching concept that spans across the combatant commanders.

As to specific ownership, that may be situationally dependent. We don't get hung-up on who owns it. We are going to move the asset to where it needs to be employed, and then command and control it in the most effective way. So it could be any combatant commander who ends up controlling that global asset.

Ms. TAUSCHER. Thank you, Mr. Larsen.

Mr. Franks for five minutes.

Mr. FRANKS. Thank you, Madam Chair.

Madam Chair, I don't usually skip over general officers here in asking questions, but when there is that second round, sometimes someone gets the chance, and Mr. Green this is mine here.

Mr. Green, I am going, if it is all right, to develop Mr. Larsen's question just a little bit because I think it is of critical import. General Craddock recently provided our subcommittee with written testimony to the effect that legislative support for the European interceptor site, and let me just quote him, "would yield a significant increase in the capabilities of combatant commands to effect change and achieve goals throughout the area of responsibility."

Now, I have to take some issue, very respectfully, with the Chair related to some of our discussions with allies there, whether it be the Czech Republic or Poland, in placing a third site or a European site there. It seems to me that the primary players or decisionmakers should be those allies and what is best for this country. That should transcend any considerations that NATO might have.

I certainly don't want to put you in a position of dealing with a policy question like that, but do you agree with General Craddock's assessment of the absolute importance of funding a European interceptor site in enhancing the defense of the U.S. homeland in particular?

Secretary GREEN. I certainly agree that this system will play a very important role in enhancing the defense of the United States and enhancing the defense of our European allies and NATO. I think the two are inextricably linked. As you improve the defense of our NATO allies and our European allies, you enhance the security of the United States and vice versa. So I don't think it is possible to tease them apart.

Certainly, the principal reason that we deploy missile defenses is that it provides warfighter benefit. The fact that General Craddock is a strong supporter of this I think speaks volumes for the importance of the European site.

Mr. FRANKS. Let me just ask you, what do you consider to be your greatest obstacle to achieving progress in the area of the European interceptor site?

Secretary GREEN. Well, first of all, I think we are confident of success. So in that sense, I would hesitate to identify any single obstacle as the principal obstacle. Obviously, there are a series of negotiations through which we have to proceed and we never take those for granted. We are confident of success, but we have to sit down with our Czech allies and our Polish allies and work through the issues that arise there.

Again, we are very confident of success there. Obviously, we have to persuade Congress that this is a good idea, and that we have our justification properly aligned, and that Congress understands the value of this. Again, we are going to pursue this in the NATO context. We continue to do that and we will do that very vigorously.

So I wouldn't identify any one obstacle as the main obstacle. There are always discussions to be had, and issues to be worked through, but again, we are very confident of that.

Mr. FRANKS. What you said very diplomatically is if anything goes wrong, Congress will be the culprit. Right? [Laughter.]

Secretary GREEN. I simply noted that Congress is a key player in this. [Laughter.]

Mr. FRANKS. I thank you, Mr. Green.

General Campbell, I guess I would ask you one of these broad questions. Sometimes it is impossible for those of us even on a panel like this to have anywhere near the technical and situational understanding that all of you have. There is no question that when you put on the uniform like that that your primary consideration has to be human freedom and what is best for this country.

Given that, given that your motivations are there, your knowledge base is very important. So let me just ask you a pretty straightforward, simple, easy, almost impossible to answer question. If we could solve any one problem for missile defense capability for this country in general, what do you think is the most important challenge that we face to develop a multi-layered missile defense capability for this country?

General CAMPBELL. I think you actually gave me the answer in your question, and that is you want to make this a complex problem for our enemies. The way we do that is we deploy and employ a multi-layered system. That is as simple as I can say it. I think that complicates their problem.

The other side of this is in terms of expanding it to allies and friends. I think the broader the missile defense, you may then enable those countries to invest in other capabilities where we are lacking. It may be chemical defense or chemical detection. So with us expanding the system, we probably open the door for other allies and friends to help us and help themselves.

Mr. FRANKS. Thank you very much. After this, the chair may never let me ask another question, so I will thank all of you.

Ms. TAUSCHER. Of course I will let you ask a question, Mr. Franks, but I do have a question for you.

General Craddock's comments, were they done in his capacity as the regional combatant commander for Europe? Or as the Supreme Allied Commander Europe (SACEUR)? I would assume it was European Command (EUCOM) commander.

Mr. FRANKS. If you are asking me, I haven't the slightest idea. [Laughter.]

Ms. TAUSCHER. Well, when you have somebody that is dual-hatted as General Craddock is, my assumption is that he was speaking as the EUCOM commander. The truth is that he is dual-hatted and he has another job, which is the Supreme Allied Commander of Europe, and that is the capacity that I want him to begin to negotiate for everyone, for a NATO-fundamental treatment for missile defense.

You can have as much time as you may consume in the next hearing, Mr. Franks.

Mr. FRANKS. Thank you, ma'am. [Laughter.]

Ms. TAUSCHER. That was not a trick.

Mr. FRANKS. I was more concerned with the veracity of his statement than the hat he was wearing.

Ms. TAUSCHER. Lieutenant General Campbell, today we have talked a little bit about the emerging missile defense threats from Iran. That said, Iran currently has the largest short- and medium-range missile force in the Middle East. Lieutenant General Campbell, can you tell me whether you believe we have a sufficient number of missile defense capabilities to defend our deployed forces and

allies in the Central Command (CENTCOM) Area of Responsibility (AOR) against the current Iranian missile threat?

General CAMPBELL. Madam Chairman, I think we have sufficient forces to defend those priority assets that the commander designates in that particular theater. Could we cover every possible population center and every host nation asset? The answer to that would be no, today.

Now, with the addition of THAAD, and we add those layers to the defense, and the Aegis BMD, then I think we are going to have a capability that can protect many more assets in the theater. I think if you looked inside any theater, you would probably get the same response from that commander, that those assets we designate as critical to the warfighter and those selected population centers, we can protect those.

Ms. TAUSCHER. Do we have the capability to support Aegis BMD operations in CENTCOM AOR?

General CAMPBELL. I don't think I can answer for CENTCOM, but you could deploy the ship into CENTCOM today. I think that ship in fact has deployed into CENTCOM already on a tour.

Ms. TAUSCHER. Into the second carrier battle group.

And what about PACCOM AOR? Do we currently have enough?

General CAMPBELL. Again, if we look at the defended asset list, we have recently deployed additional PAC–3 units to Okinawa. We have thickened the defense on the Korean Peninsula. I would think if you asked the combatant commander of PACCOM and the commander of United States Forces Korea (USFK), he might answer no, that he would like more protection, but in terms of critical asset list, I think today that we have that in place.

Ms. TAUSCHER. Mr. Everett, do you have any further questions?

Mr. EVERETT. Madam Chairman, I do not, and I appreciate you calling the meeting. I would like one final comment to the panel, and that is that the continued strong support we have for DMD full funding to include Aegis, BMD, PATRIOT, PAC–3 and the upgrade of 2's to 3's, THAAD, C2BMC, and the supporting defense. And thank you and your leadership for calling this meeting again.

Ms. TAUSCHER. Thank you, Mr. Everett.

I thank the members for attending.

Gentlemen, thank you very much for not only your significant service to the country, but your willingness to come to the hearing to give us your opinions, to give us very thoughtful statements ahead of time.

I would be remiss if I didn't thank the very seriously hardworking staff that you have sitting directly behind you taking copious notes to everything that we are saying. We see many of them in meetings with you. They are apparently very hardworking and indefatigable. We thank them for their hard work and service to the country.

Mr. EVERETT. I just want to thank you for mentioning to the panel, for thanking them for getting the statements in on time. I just left an intel meeting where our good friend Silvestre Reyes told the panel, he says, for the last time, to get those statements in one time so we can structure the meeting. So I want to thank you for bringing that up.

Ms. TAUSCHER. I thank the ranking member. I think one of the reasons why we are able to do that is because we have a very significantly hardworking professional staff on both the subcommittee and the committee. I want to thank them for their very hard work and their support.

Thank you all very much for attending this hearing.

The hearing is adjourned.

[Whereupon, at 4:43 p.m., the subcommittee was adjourned.]

A P P E N D I X

MARCH 27, 2007

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 27, 2007

Unclassified Statement of

Lieutenant General Henry A. Obering III, USAF

Director, Missile Defense Agency

Before the

House Armed Services Committee

Strategic Forces Subcommittee

Regarding the

Fiscal Year 2008 Defense Authorization
Ballistic Missile Defense

Tuesday, March 27, 2007

Embargoed Until Released by the
Armed Services Committee
United States House of Representatives

Lieutenant General Henry A. Obering III, USAF
Director, Missile Defense Agency
Missile Defense Program and Fiscal Year 2008 Budget
Before the
Strategic Forces Subcommittee
House Armed Services Committee
March 27, 2007

Good morning, Madam Chairman, Congressman Everett, distinguished Members of the Committee. It is an honor to present the Department of Defense's Fiscal Year (FY) 2008 Missile Defense program and budget.

I am pleased to report that 2006 was a year of significant accomplishment for all aspects of our missile defense program. We made substantial progress in developing, testing and fielding an integrated, layered Ballistic Missile Defense System (BMDS) 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.

Of the $8.9 billion we are requesting in Fiscal Year 2008, we will allocate $7.1 billion for near-term efforts and $1.8 billion for longer-term programs. In the near-term, we seek to build on, and sustain, our current capability to defend the homeland against limited long-range ballistic missile threats and protect allies, friends and deployed forces against short- to medium-range threats. To achieve this goal, we intend to complete the fielding of up to 44 Ground-based Interceptors (GBIs) in Alaska and California; enhance our early warning radars in Alaska, California and the United Kingdom; integrate the Sea-based X-band (SBX) radar into the BMD system; deploy up to 132 sea-based Standard Missile -3 (SM-3) interceptors on 18 Aegis engagement ships; and expand our command, control and battle-management network by establishing three new command

and control suites at U.S. Strategic Command, U.S. Pacific Command and U.S. Northern Command.

In the near-term we also seek to close gaps and improve our capability to defend against a growing Iranian threat. We will continue the initiative we began this year to field 10 long-range interceptors and a midcourse radar in Europe. This initiative is essential for a robust, layered defense of the homeland against long-range threats from the Middle East. It will also extend this defense to our deployed forces, allies and friends in the region who currently have no defense against longer-range ballistic missiles. To improve our capabilities to defeat more complex threat suites, our Multiple Kill Vehicle (MKV) program will allow us to engage multiple warheads and countermeasures with a single interceptor launch. Delivering this volume kill capability is important to the warfighter and is one of our top priorities.

For the longer-term, we are developing the Space Tracking and Surveillance System to provide a persistent, near-real-time global detection, tracking and fire control capability. This system will significantly increase the BMD system's agility and flexibility to respond to future worldwide emerging threats. We also continue to pursue boost-phase intercept capabilities in order to increase the "depth" of our integrated, layered system. Boost-phase defenses promise to increase our intercept opportunities and destroy enemy ballistic missiles when they are most vulnerable. The Airborne Laser (ABL) remains our primary boost-phase program. Based on the Defense Science Board's recommendation, we're continuing the high-acceleration Kinetic Energy Interceptor (KEI) booster development effort as an option in the event ABL does not

meet critical knowledge points in its test program. The U.S.-Japanese cooperative development of a follow-on SM-3 interceptor to give the Aegis system an ICBM intercept capability, a robust Sea-Based Terminal capability to defeat shorter-range threats, a modest experimental Space Test Bed, and our continuing advanced technology efforts all support the goal of closing capability gaps in the system.

The Evolving Security Environment

This past 4th of July, millions of Americans were made aware of just how real the threat from ballistic missiles is and how vital the missile defense program is to our national security. With the launches of the short-, medium- and long-range missiles by North Korea, missile defense became an urgent matter overnight. Because of the efforts of thousands of Americans dedicated to this program, we were able to activate a missile defense system to protect the United States had a threat emerged.

In November 2006 and January 2007 Tehran conducted several short- and medium-range ballistic missile and rocket launches. In the November exercises Iran demonstrated for the world its offensive capabilities via televised broadcasts.

North Korea and Iran dedicate significant resources to acquiring ballistic missiles, to include new medium- and intermediate-range systems capable of reaching forward-deployed United States forces and our allies and friends. North Korea continues to work on intercontinental-range systems capable of reaching the United States. In addition, our intelligence community assesses that Iran would be able to develop an ICBM before 2015

if it chose to do so. They have also demonstrated the ability for coordinated launch operations, but they are not alone.

In 2006 there were about 100 foreign ballistic missile launches around the world. This year to date, the pace of testing is about twice that of last year--a trend reflecting the determination of many countries to acquire these capabilities.

The actions of North Korea and Iran this past year demonstrate the determination of these rogue regimes to achieve this capability and potentially weapons of mass destruction to further aggressive ends. With the proliferation of ballistic missile technology, we expect to be surprised by unexpected and more robust threats. The missile defense development program recognizes that we must stay a step ahead of a dynamic threat.

U.S. Ballistic Missile Defenses—A Report Card

In January 2002, just a little more than five short years ago, the Secretary of Defense directed the Agency to restructure the missile defense program to deal with the urgency, enormity and complexity of developing, testing and building a missile defense system. This bold initiative required the adoption of an evolutionary acquisition strategy to be executed by a single agency, a strategy that relies on continual assessments of the threat, available technology, and what can be built and fielded to provide a militarily useful capability in an urgent manner.

Having capitalized on our steady progress since the 1980s, the dedicated men and women of the Missile Defense Agency and our industrial partners delivered to the

Combatant Commanders in 2004 an initial missile defense capability to defeat the near-term long-range missile threat. Supported by an extensive command, control, battle management and communications (C2BMC) infrastructure, we connected additional system elements to the fire control system and put in place trained system operators, the logistics support infrastructure and support centers required for this limited operational system.

To date, we have made significant, and in many ways, unprecedented strides to deliver a capability where none existed before. Since 2002 we have fielded and completed the initial integration of land and sea-based interceptors, mobile and fixed sensors and command, control, battle management, and communications suites to deliver one of the most complex and comprehensive defensive capabilities ever envisioned. And we did so while sustaining an aggressive development program that continues to feed new technologies into the system.

Madam Chairman, the missile defense investments of four Administrations and eleven Congresses are paying off. With the initial deployment of a limited missile defense capability, the era of absolute vulnerability of our country to a long-range missile attack came to a close. This is important, because I believe a capability against even a single reentry vehicle has significant military utility. The modest long-, medium-, and short-range defensive capabilities we have today can help reduce the more immediate threats to our security and enhance our ability to defend our interests abroad.

Long-range defenses. As part of our strategy to protect the United States from ballistic missiles launched from North Korea or Iran, we have emplaced high-performance

interceptors in missile fields at two sites and integrated them into the system. The system's Ground-Based Interceptors use hit-to-kill technologies to destroy intermediate- and long-range ballistic missile warheads in space, in the midcourse phase of flight. These are the only weapons we have available today to defeat longer-range threats once they have been launched. By the end of April, we expect to have 16 Ground-Based Interceptors in silos at Fort Greely, Alaska, and two more at Vandenberg Air Force Base in California. We plan to increase interceptor inventories at these sites up to 24 by the end of this year.

The system today will receive a cue from Defense Support Program satellites or from one of sixteen long-range surveillance and track Aegis destroyers that could be stationed near the threat region. These satellites and ships can pass detection or cueing data across communications lines into BMD system communication and battle manager nodes located in Fort Greely and Colorado Springs. Today we stand ready to locate and track threats coming out of East Asia using the Cobra Dane radar in the Aleutians and the upgraded early warning radar at Beale Air Force Base, California.

Powerful X-band radars located on a mobile platform in the Pacific Ocean and at Shariki, Japan can provide precise tracking and discrimination to increase the probability we will destroy any lethal target. A 2006 independent assessment concluded that the Sea-Based X-band radar, which deployed to the Pacific at the end of 2005, is sufficiently rugged to operate in the rough seas of the northern Pacific. These conditions were validated this past winter when the SBX experienced extremely hazardous weather with negligible impact. Also in 2006, we deployed the first forward-based X band radar to

Japan, accelerating its deployment and supporting C2BMC equipment to its operational location in Shariki Japan, achieving partial mission capability in October 2006.

Short- to medium-range defenses. Since 2004, we have expanded and improved terminal and midcourse defenses to defeat short- and medium-range threats from land and sea. Aegis ships have been periodically put on station in the Sea of Japan to provide long-range surveillance and tracking data to our battle management system. We began fielding Standard Missile–3 interceptors in 2004, evolving to a more capable interceptor. With our growing inventory of Standard Missile-3 interceptors on Aegis ships, we can provide a flexible sea-mobile capability to defeat short- to intermediate-range ballistic missiles in their midcourse phase. In 2005 we upgraded the first Aegis cruisers for the engagement mission. Today we have available three Aegis BMD engagement cruisers and four engagement destroyers.

Having successfully transitioned the Patriot Advanced Capability-3 (PAC-3) to the U.S. Army in March 2003, we continue to maintain configuration control and work with that Service to improve and upgrade PAC-3 and Medium Extended Air Defense System (MEADS) performance. Today, PAC-3 fire units are being integrated into the forces of our allies and friends, many of whom face immediate short- and medium-range threats.

Integrating the system. For the ballistic missile defense system to work effectively, all of its separate elements must be integrated across several Combatant Commands. This capability allows us to mix and match sensors, weapons and command centers to dramatically expand detection and engagement capabilities over what can be achieved by the system's elements operating individually. Combatant Commanders can use the

C2BMC infrastructure to enhance planning, synchronize globally dispersed missile defense assets, and manage weapon inventories. These capabilities also can provide our senior government leadership situational awareness of ballistic missile launches and defense activities. Today we have in-place a planning capability within U.S. Strategic, Northern, and Pacific Commands.

Supporting the warfighter. This past year we continued work with U.S. Strategic Command and other Combatant Commands to train missile defense crews at all echelons, ensuring that they can operate the ballistic missile defense system if called upon to do so. We established a BMD Operations Watch Officer to provide real-time BMD situational awareness, operational status, and coordinate the configuration of the system and have executed a series of exercises, which involve temporarily putting the system in a launch-ready state.

We have set up a process to collaborate with the Combatant Commanders and the Military Services to define and prioritize requirements as the system evolves. For example, we did not have a sea-based terminal layer planned for the program until the Commander of U.S. Strategic Command identified this as a desired capability. Once this need was identified, we worked with the Navy to define and budget for near- and far-term programs for a Sea-Based Terminal defense. We also have worked closely with the Services and the Office of Secretary of Defense on transition and transfer activities to address operations and support of the system elements. The Deputy Secretary of Defense identified lead Military Departments for eight elements of the BMDS, and the Navy has just agreed to take on lead service responsibility for the Sea-Based X-Band Radar. We

have developed Transition and Transfer Plans with the Services and the Combatant Commands. These plans capture both agreements and the roles and responsibilities associated with evolving operations and support activities. This collaboration with the warfighter includes training, testing, wargaming, and conducting exercises and simulations, all of which help demonstrate and improve the capability and reliability of the missile defense system.

BMD System On Alert. As I stated earlier, when the North Koreans conducted their launches last summer, for the first time in the history of the United States, we had the capability to defend our people against a long-range missile had it been necessary. Working closely with U.S. Strategic Command's Joint Functional Component Commander for Integrated Missile Defense, we successfully took the system out of the development mode and handed it over to the warfighter for operation. This activation of the system last June helped us to refine procedures and taught us invaluable lessons about system operations.

Alert activities included activation of the Ground-based Midcourse Defense and the deployment of a missile defense capability to the Sea of Japan. We had Aegis long-range surveillance and track ships stationed east and west of Japan during the missile firings. Data collected from these sensors would have helped identify whether the long-range launch was a ballistic missile or a space launch vehicle and would have provided tracking data to the system. The C2BMC situational awareness displays were operational and being monitored at the various commands.

We also accelerated the capability of the forward-based X-band radar in Japan for data collection. The Sea-Based X-band radar was stationed off Hawaii and similarly standing by for data collection. At the time, the forward-based radar and the sea-based radar were not integrated into the system. Given these events from last summer and our ability to bring the system on line and readied for emergency use, I am very confident that the system would have operated as designed had the Taepo Dong-2 threatened the United States.

We have an operational system today because of the capability-based acquisition approach we have followed since 2002. This approach leverages collaboration with the warfighter community throughout development and testing to the point where we transition or transfer capabilities to the operators. Had we followed the traditional acquisition approach, we would not have had an operational capability to respond to the potential threat from North Korea.

Building Confidence through Spiral Testing

Testing under operationally realistic conditions is an important part of maturing the system. We have been fielding test assets in operational configurations in order to conduct increasingly complex and end-to-end tests of the system. While the BMD system is a developmental system, it is available today to our leadership for activation to meet real world threats. Given this dual function of the test bed, the Operational Test Agencies and the warfighting community are very active in all phases of our test planning, execution, and post-test analysis.

Using criteria established by the Agency's system engineers and our warfighters, all system ground and flight tests provide data that we and the operational test community use to verify the system's functionality and operational effectiveness. Our flight tests are increasing in operational realism, limited only by environmental and safety concerns. Each system test builds on the knowledge gained from previous tests and adds increasingly challenging objectives, with the downstream goal of devising scenarios that test elements of the system from end-to-end. This spiral test approach increases knowledge of, and confidence in, the system performance while maintaining safety and minimizing artificiality.

Last year I explained that we had several concerns with quality control and reliability that led to two successive Ground-based Midcourse Defense test aborts, problems that we have since comprehensively addressed. The independent review team concluded that the deficiencies in systems engineering, ground qualification testing, flight test readiness certification, contractor process control and program scheduling were not systemic and did not compromise initial defensive capabilities. I testified last year that I did not view the failures as major technical setbacks.

Coming off the very successful fly-out of the operational configuration long-range interceptor in December 2005, we conducted a long-range intercept flight test last September that exceeded our expectations. That complex test involved an operational interceptor launched from an operational silo at Vandenberg Air Force Base, operational sensors, and operational crews manning operational fire control consoles. The test demonstrated the functionality of the Exo-atmospheric Kill Vehicle and the ability to

engage a threat-representative target using the Upgraded Early Warning Radar at Beale Air Force Base in California. After the kill vehicle acquired the target launched out of the Kodiak Launch Complex in Alaska nearly 3,000 km away from the engagement zone, it successfully intercepted it. While it was not hooked into the system, we also demonstrated the powerful contributions the Sea-Based X-band radar can make in the areas of tracking and discrimination. This was our most operationally realistic, end-to-end test of the system involving the Ground-based Midcourse Defense element to date.

Over this past year the Missile Defense Agency conducted more than 35 major tests and successfully met our primary test objectives in 14 out of 15 flight tests. In fact, during a 90-day period last summer, we achieved successful hit to kill intercepts in the lower atmosphere with the Patriot Advanced Capability-3, in the upper reaches of the atmosphere with the Terminal High Altitude Area Defense component, and in space with the Aegis Standard Missile-3 and the Ground-Based Midcourse elements. Including tests of the Patriot Advanced Capability–3, we achieved seven hit-to-kill intercepts of ballistic missile targets in eight attempts in 2006. Since 2001, we have built a record of 24 successful hit-to-kill engagements in 32 attempts. Our test plans for 2007 and 2008 will continue to use more complex and realistic scenarios for system-level flight tests.

We plan three more long-range interceptor flight tests by the end of this year that continue to push the edge of the envelope in testing complexity. All tests will continue to use operational crews and the operational launch site at Vandenberg. We plan to integrate the Sea-Based X-band radar into the system for the intercept test in late summer

as we continue to expand the number of sensors available to us to cue the system and engage targets.

On June 22 of last year, we successfully used a U.S. Navy Aegis cruiser to engage a separating target carried on a threat-representative medium-range ballistic missile. As we had done in the past three flight tests, we did not notify the operational ship's crew of the target launch time, and they were forced to react to a dynamic situation. The role of the crew is an important part of our ability to engage hostile missiles, and last December we increased test complexity by attempting a simultaneous engagement of aerial and ballistic targets and by using operator-selectable parameters to allow for automatic identification of targets. A crew member changed the ship's doctrine parameters just prior to target launch. This modification prevented the ship's fire control system from conducting the planned ballistic missile and aerial target engagements. The primary target was a very short-range ballistic missile, and thus there was insufficient time for manual engagement. When the Standard Missile–3 interceptor failed to launch, we aborted the launch of the Standard Missile–2 interceptor. This is another example of why we conduct tests—to expose flaws in the system and wring out operational procedures. We are working to resolve the problem we experienced in the test last December and expect to conduct it again this spring.

We plan four more Aegis intercept flight tests in 2007. We will again demonstrate the integration of the Aegis BMD weapon system into the overall BMD system and evaluate the ship crew's performance in executing an operationally realistic BMD mission. Early this summer, we will attempt an intercept of a separating, medium-

range target using the Standard Missile-3 Block IA interceptor. Later this year, we will demonstrate the ability to engage two near-simultaneous short-range unitary targets. Also late in 2007, as part of our growing partnership with Japan, a Japanese Maritime Self Defense Force Kongo-class ship will attempt to engage a medium-range ballistic missile separating target using the Block IA Standard Missile-3 interceptor. This will be the first such firing by a maritime ally. In 2008, we will engage a separating intermediate-range ballistic missile target using off-board sensor information to launch the interceptor. We will also attempt a second sea-based intercept test with our Japanese partners.

As I mentioned earlier, flight-testing involving the redesigned Terminal High Altitude Area Defense (THAAD) interceptor continued last July with a successful engagement of a unitary target high in the atmosphere. In September, we again sought to demonstrate the performance of the new missile and the ability to integrate it into the BMD system, but we were unable to do so following the failure of the target missile. This past January, we again successfully destroyed a short-range target, the first such test of the THAAD interceptor at the Pacific Missile Range Facility. To demonstrate the capability of the THAAD fire unit to intercept at different altitudes in the atmosphere and in low exo-atmosphere, we successfully conducted one test this year, and plan one more intercept test this year, against unitary targets. In 2008 we plan to demonstrate interceptor capabilities against more stressing targets. We will conduct two intercept tests involving the THAAD interceptor, one against a separating target in space, and the other against a separating target high in the atmosphere. Further, the first test in 2008

will include the launch of two THAAD interceptors. The Missile Defense Agency will also participate in Patriot combined developmental/operational tests as well as Air Force Glory Trip flight tests.

In 2007, we will continue with our successful ground testing, which involves warfighter personnel and test hardware and software in the integrated system configuration to demonstrate system connectivity and interoperability. Upcoming tests will verify integration of the sea-based, forward-based, and Fylingdales radars. The funds we are requesting will support additional capability demonstrations and readiness demonstrations led by the warfighting community. We currently cannot test and train on the system while it is in full operational mode. To address this problem, we are developing a capability to support continued research, development, test, evaluation, and maintenance while concurrently sustaining operational readiness.

Based on the many tests we have conducted to date, we maintain our confidence in the BMD system's basic design, its hit-to-kill effectiveness, and its inherent operational capability. We continue to work closely with the Director, Operational Test & Evaluation, Operational Test Agencies, and Combatant Commanders to characterize the effectiveness and readiness of the system at every stage in its development and fielding.

BMD System Fielding Plans

Maintaining and Sustaining the Capability. The top priority of the Missile Defense Agency is to maintain and sustain the deployed initial capability to stay ahead of the North Korean and Iranian threats. This means improving long-range capabilities for

homeland defense and moving forward with initial defenses to protect allies and U.S. interests abroad against shorter-range ballistic missiles.

Our program strategy completes the fielding of ground-based interceptors in Alaska and California. We will begin construction in 2007 of a third missile field at Ft. Greely and accelerate delivery of interceptors. We also will begin increasing the number of interceptors available at Vandenberg Air Force Base from two to four. An additional fifth silo at Vandenberg will be dedicated to testing. We will have up to 30 long-range interceptors deployed by the end of 2008. For midcourse capability against the long-range threat, the Ground-based Midcourse Defense element budget request for FY 2008 of about $2.5 billion will cover continued development, ground and flight testing, fielding and support.

To address short- to intermediate-range threats, in 2006 we added one Aegis engagement cruiser, for a total of three, and three Aegis engagement destroyers. As we convert destroyers this year to add the engagement capability, the number of long-range surveillance and track (LRS&T) ships will fall from 10 at the end of 2006 to 7 and our total number of fully BMD-capable Aegis engagement ships (cruisers and destroyers) will climb to 10. By the end of 2008, we plan to have 13 Aegis engagement destroyers and 3 engagement cruisers and 40 interceptors in inventory. System tests will involve further demonstrations of the sea-based interceptor, and we will continue enhancing the system's discrimination capability. For FY 2008, we are requesting approximately $1.044 billion to continue Aegis BMD development and testing.

To supplement the Cobra Dane and Beale radars, we will finish the integration work on the Royal Air Force Fylingdales early warning radar in the United Kingdom. It will be fully operational by the end of this year. This radar will provide coverage against Middle East launches against the United States and our allies in Europe. Our FY 2008 budget request for BMD radars is $758 million. These funds will continue forward-based radar integration work and complete construction of a permanent basing site at Shariki Air Base. We will also deploy a second forward-based X-band radar.

With this year's budget request for $247 million for the C2BMC activity, we will continue to use spiral development to incrementally develop, test, and field hardware and software improvements leading to a robust, net-centric missile defense capability that fights as a system. We have made incredible progress in this area despite decrements in funding over the past couple of years. Our ability to defend against highly lethal threats or operate in a very complex, stressing battle environment spanning multiple theaters requires all missile defense elements, which may be spread over thousands of miles, work together as a "team." Today we can do that. I am very proud of what our national team for integration has achieved. We will press on with the development of the Global Engagement Manager at the Pacific Air Operations Center and integrate into the system the forward-based radar in Japan, the Sea-Based X-band radar, and the Fylingdales radar. We plan to install additional planning and situational awareness capabilities to facilitate executive decision-making in the European Command and the Central Command by 2009.

Closing Capability Gaps. Our long-term strategy is to make the system more robust, reliable and flexible in order to close gaps in our missile defense capabilities. In line with our multilayer approach, the missile defense program in FY 2008 and beyond will expand terminal defense protection, upgrade and improve midcourse discrimination and firepower, strengthen the capability of the BMDS to defeat coordinated attacks, and place increasing emphasis on boost phase defenses.

The missile defense program will improve coverage of the United States and, for the first time, extend coverage to Europe against longer-range ballistic missiles. We have agreed with Poland and the Czech Republic to begin focused discussions on the deployment of long-range interceptors and a midcourse discrimination radar. We plan to modify the X-band radar currently located on the Kwajalein Atoll and relocate it to a site in the Czech Republic. The deployment of this X-band radar in Europe will complement sensor assets deployed in the United Kingdom and Greenland. In addition to increasing the number of long-range interceptors emplaced at missile fields in Alaska and California, we are hopeful that successful completion of negotiations with the Government of Poland will allow us to being emplacing ten Ground-Based Interceptors in Poland beginning in 2011.

We also are developing the Multiple Kill Vehicle (MKV) system to upgrade long-range interceptor performance by attaining a volume kill capability to defeat multiple reentry vehicles and midcourse countermeasures. We have restructured the MKV program to develop land- and sea-based interceptor payloads by the middle of next decade. Besides bringing several kill vehicles to the fight, the MKV system will provide

critical tracking and discrimination information to other system sensors and interceptors and assist with kill assessment. We have requested $265 million for this work in FY 2008.

This budget submission also continues the upgrade of the Thule early warning radar in Greenland and its integration into the system by 2009. Together with the radars in California, Alaska and the U.K., the Thule radar will ensure full coverage of the United States against threats from the Middle East. We will also continue to enhance additional forward-based X-band radar capabilities in Japan and other operating locations to meet warfighter needs.

We also will bolster defenses against short- to medium-range threats by increasing the inventory of Aegis BMD sea-based interceptors from 86 to 132 by 2013. Upgrades to the Standard Missile – 3 include improvement of the Divert and Attitude Control System and discrimination performance. We also will provide a full upgrade of the Aegis BMD Weapon System to improve its ability to detect, acquire, and intercept more diverse, longer-range threats. At the end of the decade, we will integrate Aegis BMD with the Navy-developed Open Architecture system to remain compatible with Navy ships following modernization.

We will field two, and future plans call for four, Terminal High Altitude Area Defense (THAAD) fire units, which consist of radars and 96 interceptors. THAAD will provide transportable terminal protection for our troops and areas along the U.S. coasts or on the territories of our allies. The first unit will be fielded in 2009, with subsequent

units fielded by 2012. We are requesting $858 million in FY 2008 for THAAD development and fielding.

Developing Options for the Future

We do, of course, need to address far-term threats. In simplest terms, that means managing a program that balances initial, near-term fielding of system elements with long-term development. I continue to be a firm believer in the balanced program, because it neither compromises our security in the present nor short-changes our future safety. This approach recognizes the urgency of fielding capabilities to address threats we face today and the necessity of continuing support for vigorous development activities to prepare for tomorrow's ballistic missile challenges to our security.

I am in strong agreement with the Members of the House Armed Services Committee, who recently concluded that the country's missile defense program "must be scalable in response to the evolution of the threat."[1] The Missile Defense Agency plans to develop options for incrementally fielding elements of the ballistic missile defense system. We will do this by leveraging a key U.S. strength, our technological advantage, and by building with our allies a foundation of global access and response.

In executing our program we continue to follow a strategy of retaining alternative development paths until capability is proven—a knowledge-based funding approach. That means we are setting specific targets, or knowledge points, that the development efforts have to reach to demonstrate a specific capability.

---

[1] House Armed Services Committee, *Committee Defense Review Report*, December 2006, p. 104.

There are several important development efforts funded in this budget. A significant part of missile defense investment has been devoted to the development of terrestrial boost phase defenses to supplement currently fielded midcourse and terminal defenses. An operational Airborne Laser (ABL) could provide a valuable boost phase defense capability against missiles of all ranges. We restructured the Kinetic Energy Interceptor (KEI) activity to focus on development of a high-acceleration booster, one that is more capable than any booster we currently have in inventory. Either ABL or the kinetic energy booster will be selected as the primary boost phase program upon completion of critical knowledge points before 2010.

Over the past two years we have demonstrated in ground tests the power and reliability of the ABL high energy lasers. We also have tested the command and control and passive target detection systems in flight. In 2006, we refurbished the high energy laser optics and completed integration and ground testing of the low-power tracking and beacon illuminator lasers. This year we will flight test the beam control and atmospheric compensation against a cooperative airborne target. Earlier this month, we reached an important milestone in this program when we conducted the first in-flight test of the laser targeting system, successfully demonstrating a technology that will help track a boosting ballistic missile and identify the most vulnerable sections on the rocket motor case to be hit by the high energy laser. We recently completed major structural modifications to the Boeing 747 aircraft to support installation of the high energy laser, which will continue in 2008. The $516 million we request in FY 2008 will complete integration of the high energy laser modules with the modified aircraft as we prepare for a lethal shootdown of a

ballistic missile target in 2009. Despite the continued technical challenges we face, I remain optimistic that we can produce an operationally effective directed energy capability.

We have made good progress in our high-acceleration booster development effort. This past year we successfully conducted the first static firings of the first and second stage boosters and demonstrated overhead non-imaging data fusion processing within the prototype fire control component. This high acceleration booster would also enhance the performance of the currently deployed Ground-Based Interceptor. Within the restructured program we will maintain options to develop a land-mobile launcher and fire control system as well as an option for a sea-based capability. We are requesting $214 million in FY 2008 for this activity.

We plan to develop space-based sensors to provide a persistent identification and global tracking capability. A small constellation of Space Tracking and Surveillance System (STSS) satellites will enable operation of the missile defense system worldwide, independent of terrestrial-based sensors along the threat trajectory. These sensors will be able to detect and track enemy ballistic missiles and payloads through all phases of flight and close the system fire control loop globally. We are on track to launch two demonstration satellites in November 2007. Next year, following on-orbit check-out, these demonstration satellites will perform live target acquisition, tracking and handover. We are requesting approximately $319 million in FY 2008 to execute the Space Tracking and Surveillance System activity.

We have learned a great deal from the ground-testing of the STSS Block 2006 sensors in representative, thermal vacuum conditions. We have proven that this class of sensor will achieve the necessary sensitivity to support intercepts. Given the long design timelines for space systems, we are requesting funding in FY 2008 to begin work on the follow-on constellation. Postponing the start of this phase of the program will delay our ability to achieve a necessary global sensor and fire control capability.

In April of this year we are launching a satellite, the Near Field Infrared Experiment (NFIRE), to collect high resolution infrared phenomenology data from boosting targets. Following preparation of the satellite once it is on-orbit, in August and October 2007, we will conduct tests using live ballistic missile targets. The data from NFIRE will be fed into simulation models and contribute to the future sensor designs.

We will continue work with Japan to increase Standard Missile-3 range and lethality. The development of the 21-inch Standard Missile–3 Block IIA interceptor will increase our capability to engage longer-range ballistic missiles from Aegis BMD platforms and help close a capability gap around 2015. We have requested $74 million in FY 2008 as part of our cooperative work with Japan to purchase long-lead items required for the development of this interceptor.

Another capability gap exists in terminal defense against short- and medium-range ballistic missiles. For the past two years, the Navy and the Missile Defense Agency (MDA) have collaborated on plans for a Sea-Based Terminal defensive layer. In May 2006 we demonstrated the feasibility of developing a limited near-term capability against a short-range ballistic missile using a modified Standard Missile–2 Block IV interceptor.

Based on this demonstration, we are upgrading the Aegis weapon system, and the Navy is upgrading the SM-2 Block IV, the goal being to install a terminal engagement capability on 18 Aegis BMD ships beginning in 2009. We also are examining with the Navy options for developing a far-term improved capability to address short- and medium-range threats. Our FY 2008 request for Sea-Based Terminal development work is $75 million.

The next generation of C2BMC capability will be essential if we are to close gaps in our command seams. As we deliver more sensor and interceptor capability into the hands of the warfighters, they are faced with several more options to defend their areas of responsibility. We must continually refine our C2BMC capability to allow the warfighters to rapidly process all of the available options, plan for the employment of BMDS assets, and globally manage the execution of the system on tight timelines. The battlefield effect is that the integrated BMD system can defend against more missiles simultaneously, reduce risk of missiles leaking through our defenses, conserve more interceptor inventory, and defend a larger area.

Finally, I am deeply concerned about future threat uncertainty and worldwide ballistic missile proliferation. I believe the performance of the BMD system could be greatly enhanced by an integrated, space-based layer. Space systems could provide on-demand, near global access to ballistic missile threats, minimizing the limitations imposed by geography, absence of strategic warning, and the politics of international basing rights. A space layer would apply pressure on launches from land or sea, depriving the adversary of free rides into midcourse with advanced countermeasures.

While deployment of such a system must be preceded by significant, national-level debate, that debate must be informed by science. To that end, we are ready to begin a focused investigation of the feasibility of having an integrated space-based layer, and I am requesting $10 million for FY 2008 to begin concept analysis and preparation for small-scale experiments. These experiments will 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 congressional and departmental reductions in the Missile Defense Agency budget. The following program activities have been delayed: delivery of the first operational STSS satellite has slipped from 2012 to the 2016-2017 timeframe, prolonging the time we will be without a capability to integrate the system globally; and the scope of the KEI activity has been reduced to focus on booster development and delay work on system integration, battle management, and fire control. The reductions also have impacted work in the area of innovative technology development. I regret that we have had to cancel two important advanced technology efforts, the High Altitude Airship and the micro satellite activities.

International Participation

The global nature of the threat requires that we work closely with our allies and friends to develop, field, and operate missile defenses. I am pleased to report that many governments share our vision for missile defense. This past year we continued to build

on a very successful program to involve more countries and forge international partnerships. Without the participation of our allies and friends, the ballistic missile defense system would look very different.

The Government of Japan remains solidly behind missile defense and has even accelerated its program to field multilayered missile defenses that are interoperable with the U.S. system. Japan continues to upgrade its Aegis destroyers and acquire Standard Missile-3 interceptors. In March 2006 we successfully flight-tested new nosecone technologies developed in cooperation with Japan. Additionally, the Missile Defense Agency and Japan have agreed to co–develop a Block IIA version of the Standard Missile-3, which will improve our defensive capabilities against longer-range missiles. Japan also is upgrading its Patriot fire units with Patriot Advanced Capability-3 missiles and improved ground support equipment. In 2008 Japan is expected to begin co-production of the PAC-3 missile.

The upgraded Royal Air Force Fylingdales radar in the United Kingdom will undergo operational testing this year. Once we certify the radar, it will provide the system critical early warning, tracking and cuing data needed to defeat threat missiles coming out of Iran. We are working closely with Denmark to upgrade the Thule early warning radar in Greenland to improve its capability to detect and track ballistic missiles.

Later this year we will conduct satellite-to-ground and satellite-to-satellite communication experiments with a German-built Laser Communications Terminal installed in the NFIRE satellite. Together with an identical terminal on a German

satellite, the United States and Germany will perform joint experiments to validate the use of laser technology for high speed space communications.

The United States and The Netherlands have been working together to modify Dutch frigates with a combat system to enable ballistic missile detection and tracking. An upgraded air command and defense frigate from The Netherlands successfully detected and tracked the targets in the December 2006 Aegis ballistic missile defense flight test.

We are continuing work with Israel to implement the Arrow System Improvement Program and enhance its capability to defeat longer-range ballistic missile threats emerging in Iran. This past year are also looking to conduct a feasibility study on a joint development program called David's Sling for shorter-range missile defense.

We continue to support our North Atlantic Treaty Organization (NATO) partners in advancing the dialogue on the political-military implications of defending European population centers against longer-range missile threats. The Missile Defense Agency is supporting the NATO Active Layered Tactical Ballistic Missile Defense Program Office to develop a capability to protect deployed forces by 2010.

I am also pleased to announce that this past February we put in place a Framework Memorandum of Agreement with Italy and we can now begin to develop opportunities for missile defense technology sharing, analysis, and other forms of collaboration. We have other international interoperability and technical cooperation projects underway, for example with Australia, and are working to establish formal agreements with other governments.

Closing

Madam Chairman, in closing, some have said that the Defense Department's investments in missile defense are misdirected, that other threats are more pressing. Others have said we are spending too much money on missile defense and that it is too expensive. And still others have claimed that we should slow down fielding activities until the technologies are more mature.

I disagree with these critics, Madam Chairman. We must meet the rising threats posed by ballistic missiles. We have seen rogue nations test these weapons in the past year. Ballistic missile defense is expensive, but the dollar investment in this nation's security pales in comparison to the overwhelming price this nation would pay in lives, social dislocation, and economic devastation from a single missile impacting an American metropolitan area. Indeed, the success we have seen in our comprehensive test program indicates that there is no reason to slow down.

In less than three short years, thanks to the dedication of thousands of men and women across this country and a first-class, cutting-edge defense industry, we have deployed missile defenses to protect our homeland, our troops deployed to dangerous regions around the world, and our allies and friends. But we have a long way to go. So now is not the time to cut back missile defense. Now is the time to accelerate it.

Thank you and I look forward to your questions.

RECORD VERSION

STATEMENT BY

LIEUTENANT GENERAL KEVIN T. CAMPBELL, USA

COMMANDING GENERAL,
U.S. ARMY SPACE AND MISSILE DEFENSE COMMAND/
U.S. ARMY FORCES STRATEGIC COMMAND
AND
JOINT FUNCTIONAL COMPONENT COMMAND FOR
INTEGRATED MISSILE DEFENSE

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE
STRATEGIC FORCES SUBCOMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

FIRST SESSION, 110TH CONGRESS

MARCH 27, 2007

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE, STRATEGIC FORCES

Lieutenant General Kevin T. Campbell, USA
Commanding General
U.S. Army Space and Missile Defense Command/
U.S. Army Forces Strategic Command
and
Joint Functional Component Command for
Integrated Missile Defense

Introduction

Madam Chairman, Representative Everett, and Members of the Committee, thank you for your ongoing support of our military and for the opportunity to appear before this panel. In my view, this Committee is a strong ally of the Army and the missile defense community, particularly in our continuing efforts to field missile defense forces for the Nation and our allies. I consider it a privilege to be counted in the ranks with my fellow witnesses as an advocate for a strong global missile defense capability.

My current responsibility entails two roles. The first is as the Army's senior commander for space and missile defense. The second role is as a Soldier on the Joint Missile Defense Team and Commander of the Joint Functional Component Command for Integrated Missile Defense, a part of the US Strategic Command. In this role, I serve as the Joint user representative working closely with the Missile Defense Agency (MDA), other services, and Combatant Commanders to ensure that our national goals of developing, testing, and deploying an integrated missile defense system are met in an operationally sound configuration.

Madam Chairman, as proven during last year's July 4th North Korean missile launches, Army Soldiers are trained and ready to operate the Ground-Based Midcourse Defense (GMD) Element of the Ballistic Missile Defense System (BMDS) at Fort Greely, Alaska, and the Joint National Integration Center at Schriever Air Force Base in Colorado.

These Soldiers, as part of the Joint team, continue to serve as our Nation's first line of defense against a rogue nation's launch of an intercontinental ballistic missile toward our shores. I am proud to represent them along with the other members of the Army and Joint integrated missile defense community.

United States Strategic Command JFCC-IMD

The Joint Functional Component Command for Integrated Missile Defense (JFCC-IMD) was established in January 2005 as one element of the US Strategic Command (USSTRATCOM) and reached full operational capability early in 2006. The JFCC-IMD is manned by Army, Navy, Air Force, Marine Corps, and civilian personnel. This joint-manning arrangement and our strong partnership with our collocated MDA team enable us to execute the integrated missile defense mission by leveraging the existing robust infrastructure.

USSTRATCOM, through the JFCC-IMD, continues to aggressively execute its mission to globally plan, integrate, and coordinate missile defense operations. Through stressing operational scenarios, integrated missile defense has experienced robust growth and maturity and has improved its ability to defend this nation. Although, there is much work yet to be done, JFCC-IMD continues to lead the Department's transformation toward more robust integrated missile defense capabilities. The Soldiers, sailors, airmen, Marines, and civilians of this Joint warfighting organization execute our mission to plan, integrate, and coordinate global missile defense operations and support by operationalizing new capabilities from MDA, developing global missile defense plans in collaboration with the Geographical Combatant Commanders, and conducting cross-geographical combatant commander exercises to eliminate seams and

gaps to maintain a strong defense against changing threats. Execution of the essential mission includes providing warning of missile attack to other Combatant Commanders and providing assessment of missile attack. In all, JFCC-IMD continues to build operational competence of the integrated missile defense capability and warfighter confidence in executing our mission.

Ballistic Missile Defense System Progress

This past year has been a year of operational achievement for integrated missile defense as we successfully placed the Ballistic Missile Defense System (BMDS) on alert in response to a credible ballistic missile threat from North Korea. This limited defense capability marked the beginning of global missile defense as warfighters from three combatant commands and allies integrated respective assets and personnel toward a single mission against a common threat. The scale of this integration is unprecedented – non-missile defense assets were integrated with legacy and state-of-the-art technologies to provide a shield to protect our homeland. Additionally, we achieved unparalleled integration of the Department's intelligence capabilities to enable timely and responsive indications and warning to support missile defense readiness. We expect the warfighting capability provided by such integration of assets, platforms, doctrine, and personnel to continue to grow in coming years.

The North Korean incident last summer also underscored the growing maturity of the cross-JFCC integration within USSTRATCOM in executing its global mission. JFCC-IMD collaborated closely with the JFCCs for Intelligence, Surveillance and Reconnaissance (JFCC-ISR) and Space (JFCC-Space) to integrate the intelligence, surveillance, reconnaissance, and space assets for the missile defense missions. This

effort afforded the use of intelligence, surveillance, reconnaissance, and space assets that previously had not been included in the missile defense mission. Similarly, JFCC-IMD collaborated closely with JTF-Global Network Operations to maximize availability of a robust communication network to link the decision-makers in Washington with commanders across the globe. We have also integrated our planning efforts with the JFCC for Global Strike and Integration (JFCC-GSI) to ensure we integrated both offensive and defensive capabilities into potential courses of action. Our approach today for a missile defense contingency is designed to examine and integrate a broader array of capabilities into our planning and execution. In short, JFCCs are maturing in a deliberate and coordinated pace to extend the New Triad in its global mission.

JFCC-IMD's readiness demonstrated during last summer's incident is a testimony to the robust warfighter exercise and test program. During the past year, we planned and conducted three major combatant command-level exercises involving US Pacific Command, US Northern Command and US Strategic Command. These exercises enabled combatant commanders to exercise concepts of operations and tactics, techniques, and procedures, and improve our planning and execution of missile defense operations. These activities enhance warfighter competence in prosecuting a global missile defense capability. JFCC-IMD's global missile defense exercise program also extended to our coalition partners. These international exercises further bolstered our allies' resolve in conducting combined missile defense operations and extending partnership into co-development of future capabilities.

Warfighter Contributions to System Development

Warfighters participate in key BMDS tests to build confidence in its capabilities. JFCC-IMD led warfighter participation in the first distributed ground tests on the operational BMDS, geographically distributed from Colorado to Alaska, and Washington to Japan. This test demonstrated the growing sophistication and complexity of BMDS assessments that are increasingly operationally relevant. Furthermore, warfighters collaborated with MDA to successfully conduct key flight tests to bolster our Nation's confidence in the effectiveness of the integrated missile defense capabilities.

Within a 90-day period, we successfully intercepted ballistic missiles at low and high altitudes; in midcourse and terminal phases; and, in endo- and exo-atmospheric environments with the PATRIOT Advanced Capability-3 (PAC-3), the AEGIS Standard Missile-3, the Terminal High Altitude Area Defense (THAAD), and our long-range Ground-Based Interceptor. Conducting these system-level flight and ground tests required the use of operational assets, the very assets that would be used to defend this nation against a possible North Korea missile attack. JFCC-IMD worked closely with the Combatant Commanders and MDA to coordinate the availability of these assets to ensure sustained operational readiness during the conduct of the system-level tests.

The JFCC-IMD was able to balance the requirements of both operations and tests, but this period of robust achievements underscored the warfighter's requirement to expedite development and deployment of a concurrent testing, training, and operations capability. Concurrent test, training and operations will permit developers and operators to maintain full operational mode of the BMDS while simultaneously developing, testing, or training on the system. The need for the concurrent test,

training and operations capability is especially pronounced for the one-of-a-kind assets that are shared between the warfighter, developer, and trainer communities.

Absent a mature concurrent test, training and operations capability, JFCC-IMD aggressively conducts an asset management process to ensure the highest level of operational readiness during conduct of materiel development and tests. Supported by an indications and warning system, the asset management process has been the key enabler to operationalize new capabilities, perform operationally relevant tests, and conduct system-wide upgrades. During the past year, the asset management process facilitated warfighters and materiel developers in optimizing the use of the deployed elements while fielding additional assets. In addition, warfighter participation in the flight and ground testing increased our confidence in the system's performance.

Increasing the Capability of the System

JFCC-IMD, in partnership with MDA and the Services, has integrated additional missile defense sensors and shooters to enhance theater and strategic mission capabilities. We have increased the robustness of our sensor capability by deploying a mobile sensor in Japan, increasing the number of AEGIS ships enabled with the long range search and tracking capability, and are deploying a midcourse discrimination sensor in the waters of Alaska. We have continued deployment of the Navy's Ballistic Missile Defense AEGIS Standard Missile-3, PATRIOT Advanced Capability-3 missiles, and increased the number of Ground-Based Interceptors. Additionally, in my role as the JFCC-IMD Commander, I have been in discussion with European

Command to build a stronger partnership with our Allies and to host a midcourse radar and interceptor site to counter the Iranian threat.

The Command, Control, Battle Management, and Communications System is an essential evolutionary component of the BMDS that greatly enhances both planning and execution capabilities. The command and control system contributes to all phases of integrated missile defense from optimizing planning to synchronizing the automated execution of the BMDS. During the past year, upgrades to the command and control system have extended situational awareness, planning, and sensor management capability to key components of US Strategic Command, US Northern Command, and US Pacific Command. Additionally, critical command and control system situational awareness nodes are utilized by the White House, National Military Command Center, and Secretary of Defense Executive Support Center.

As we move forward in the next year, much work remains to be done. We will continue to integrate and conduct cross-geographic combatant commander planning and exercises, deploy new capabilities, and increase allies' involvement in global missile defense. We will continue to advocate for system improvements that close capability gaps and improve system performance. Fielding more capable command and control systems, sensors, and kill vehicles, such as the Multiple Kill Vehicle, will provide the warfighter with a system capable of addressing a broad range of threats. Our continuing goal is to develop a seamless missile defense system, that integrates all available capabilities, to deter and dissuade the proliferation of missile threats, and if necessary, defeat them to protect our Nation, deployed forces, friends, and allies.

Air and Missile Defense—an Overview of the Fiscal Year 2008 Army Budget Submission

In addition to deploying the BMDS, MDA, the Services, and the Combatant Commanders continue to focus on improving theater air and missile defense capabilities. Both the Ground-Based Midcourse Defense and Theater Air and Missile Defense Systems are vital for the protection of our homeland, deployed forces, friends, and allies. Air and missile defense is a key component in support of the Army's core competency of providing relevant and ready land power to Combatant Commanders.

As you are aware, real world events over the past year have increased the relevance, urgency, and importance of theater air and missile defense as well as cruise missile defense. Medium and short-range ballistic missile and cruise missile threats continue to grow, especially in light of increased proliferation of missile defense technology. These threats, combined with Iran's and North Korea's increased interest in nuclear capabilities, are of particular concern.

As highlighted in the 2006 Quadrennial Defense Review, a number of potentially hostile states possess or seek weapons of mass destruction. This is especially troubling when considered along with ballistic and cruise missile proliferation. For these states, weapons of mass destruction – particularly nuclear weapons – provide the means to assert regional domination and intimidate others. As such, the Quadrennial Defense Review specifically highlighted the need for integrated defenses against short-, intermediate-, and intercontinental-range ballistic and cruise missile systems.

The House Armed Services Committee Defense Review Report, released in December of 2006, concluded that the U.S. force structure must expand and U.S. capabilities must improve to reduce the risk to the

security of the American people to an acceptable level and noted that a robust BMDS is critical to defeat strategic threats to the United States and its allies. The report also noted that Operation Enduring Freedom and Operation Iraqi Freedom are consuming key missile defense capabilities, leaving other worldwide commitments under-resourced.

In light of these reports and their findings, the Army, in concert with the Department of Defense and MDA, is taking the necessary steps to ensure that the U.S. homeland, allies and deployed forces are provided the necessary protection from these threats. With that as a background, I would now like to focus on the Army's Fiscal Year 2008 budget submission for air and missile defense systems. The President's Budget, presented to Congress on February 5th, includes approximately $1.75 billion with which the Army proposes to execute current Army air and missile defense responsibilities and focus on future development and enhancements of both terminal phase and short-range air and missile defense systems. In short, the Army is continuing major efforts to improve the ability to provide warning, acquire, track, intercept, and destroy theater air and missile threats.

The Army, as part of the Joint team, continues its transformation of air and missile defense forces to meet the increasingly sophisticated and asymmetric threat environment encountered by the Joint and Allied warfighter. The air and missile defense force will meet this threat by adhering to the following imperatives:

- One seamless integrated force
- Advanced engagement concepts
- Defense in depth
- 360-degree defense

- Early and continuous engagements
- Assure friendly use of airspace
- Support information dominance

Integrated Air and Missile Defense

In order to fulfill these imperatives, the Army is transforming its air defense force from its current separate systems architecture to a component-based, network-centric, Integrated Air and Missile Defense system of systems. The Integrated Air and Missile Defense Program focuses on systems integration, common battle command and control, joint enabling networking, and logistics and training to ensure operational requirements, such as force lethality, survivability, transportability and maneuverability, are achieved. Benefits of developing and fielding such a capability include:

- Expanded defended areas against the full-spectrum of threats
- Integrated defense design which eliminates single nodes of failure
- Flexibility in choice of interceptors
- Ability to battle manage weapons, sensors, and inventories
- Seamless training adjustments for battle managers across the Integrated Air and Missile Defense Force
- Closing current capability gaps

The Integrated Air and Missile Defense Program employs an evolutionary acquisition strategy that leads to the objective net-centric system of systems plug-and-fight capability. The approach calls for a restructuring of current Army air and missile defense systems into

components of sensors, weapons, and battle management command, control, communications, computers, and intelligence with a standard set of interfaces among the components using a standardized communications network. This modularization of missile defense capabilities will allow Joint Forces Commanders to scale and tailor assets and forces based upon the specific operating environment in which they are employed.

Technology insertions to the Integrated Air and Missile Defense will continue throughout each increment as high-payoff technologies mature and are ready for integration. Incremental development of the program allows the Army to more quickly field new and improved capabilities to the warfighter. The proposed Fiscal Year 2008 President's Budget supports the evolution of an Integrated Air and Missile Defense capability.

Air and Missile Defense Organizational Structure

As part of air defense transformation, the Army has created composite air and missile defense battalions. These battalions address capability gaps, permitting us to defeat cruise missiles and unmanned aerial vehicles while maintaining our ability to defend critical assets from the ballistic missile threat. Composite air and missile defense battalions will capitalize on the synergies of two previously separate disciplines: short-range air defense and high-to-medium altitude air defense. Additionally, the Army no longer provides an organic air defense artillery battalion to its Divisions. Instead, divisional air defense artillery battalions are pooled at the theater-level to provide air and missile defense protection based on situation and mission requirement. The pool of Army air and missile defense resources will address operational requirements in a tailored and timely manner. This pooling concept supports the Army's

effort to move to modular designs that allow force tailoring of units better sized to meet the Combatant Commanders' needs and homeland security and defense requirements.

Within the context just provided, allow me to briefly discuss the three main component areas of the Army's air and missile defense construct: Terminal Phase Ballistic Missile Defense, Cruise Missile Defense, and Force Protection.

Terminal Phase Ballistic Missile Defenses

The PATRIOT/Medium Extended Air Defense System (MEADS) capability is designed to counter theater ballistic missile threats in their terminal phase in addition to cruise missiles and other air-breathing threats. Combining these systems with the Terminal High Attitude Area Defense System capability being developed by MDA with a planned fielding in Fiscal Year 2009, brings an unprecedented level of protection against missile attacks to deployed U.S. forces, friends, and allies well into the future.

PATRIOT/PAC 3 Overview

Madam Chairman, since the combat debut of the PATRIOT Air and Missile Defense System during Operation Desert Storm, the Army has continued to implement a series of improvements to address the lessons learned. During Operation Iraqi Freedom, we saw the debut of the improved PATRIOT Configuration-3 system, including the effective use of the Guidance Enhanced Missile and the PATRIOT Advanced Capability 3 (PAC-3) Missile. PAC-3 is the latest evolution of the phased materiel improvement program to PATRIOT. Combining developmental testing and operational data, this program enables the development and

deployment of a new high-velocity, hit-to-kill, surface-to-air missile with the range, accuracy, and lethality necessary to effectively intercept and destroy more sophisticated ballistic missile threats. Today's PATRIOT force is a mixture of PAC-2 and PAC-3 configured units. To maximize the full advantage of the PAC-3 capabilities, the Chief of Staff of the Army has directed the Army to pure-fleet the entire PATRIOT force to the PAC-3 configuration. In response to Combatant Commanders' requirements, the Vice Chief of Staff of the Army directed the creation of two additional Patriot battalions to help relieve the stress on the PATRIOT force and increase the Army's strategic responsiveness in the area of terminal ballistic missile defense. These directives underscore the importance of PATRIOT to the nation's overall National Military Strategy and are necessary to maximize the capabilities for protecting the security interests of both the United States and our allies.

While PATRIOT saved many lives defending against Iraqi ballistic missile attacks during Operation Iraqi Freedom, there were some operational deficiencies. The Army has undertaken steps to correct them and address lessons learned. The Army has pursued two thrusts—identification and execution of a $41.6 million program for nine specific Operation Iraqi Freedom fixes and continued aggressive participation in Joint interoperability improvements in situational awareness. The development, testing and materiel release for the nine enhancements is on schedule to be completed by the end of this fiscal year. Several enhancements have already completed fielding. The remaining enhancements are either currently being fielded or are planned to start this spring. Based on the current fielding schedule, all remaining Operation Iraqi Freedom fixes will complete fielding to the units by Fiscal Year 2009.

The PATRIOT system remains the Army's mainstay Terminal Air and Missile Defense System and our Nation's only deployed land-based short-to-medium range BMDS capability. The current PATRIOT force must be sustained and recapitalized until MEADS is completely fielded. Fielding of MEADS is scheduled to begin in 2015 and be completed by 2028.

Combined PATRIOT/MEADS Approach

With the approval of the Defense Acquisition Executive, the Army embarked on a path that merged the PATRIOT and MEADS programs, establishing the PATRIOT/MEADS Combined Aggregate Program with the objective of achieving the MEADS capability through incremental fielding of MEADS major end items into PATRIOT. PATRIOT/MEADS Combined Aggregate Program is an important capability that will operate within the BMDS. It is, in fact, a top Army priority system for defense against short- and medium-range tactical ballistic missiles and air breathing threats. The PATRIOT/MEADS Combined Aggregate Program will be an integral part of the Integrated Air and Missile Defense System of Systems and capable of operating within a Joint, interagency, intergovernmental, and multinational interdependent operational environment. It will provide wide-area protection at strategic, operational, and tactical levels.

The PATRIOT/MEADS Combined Aggregate Program will also provide battle management command and control in accordance with the IAMD provided common battle command system, introduce lightweight deployable launchers, upgrade the PAC-3 missile, and eventually provide the full MEADS capability to the entire force. By establishing the PATRIOT/MEADS Combined Aggregate Program, the Joint integrated air and missile defense architecture will become more robust in key ways.

First, MEADS enhancements are integrated into the existing system. Second, as lessons are learned from the present missile defense capability, they will be incorporated into the MEADS follow-on system.

MEADS is a cooperative development program with Germany and Italy to field an enhanced ground-mobile air and missile defense capability. The MEADS program, which supports the President's goal for international cooperation in missile defense, will enable the joint integrated air and missile defense community to operate more effectively on future battlefields. MEADS will provide theater level defense of critical assets and continuous protection of a rapidly advancing maneuver force as part of the Joint integrated air and missile defense architecture. Major MEADS enhancements include 360-degree sensor coverage and a strategically deployable and tactically mobile air and missile defense system that can be deployed and controlled as part of the integrated air and missile defense architecture. The PAC-3 Missile Segment Enhancement is currently under development and will be integrated into the MEADS program. The Missile Segment Enhancement Missile will provide a more agile and lethal interceptor that increases the engagement envelope. We are confident that this path will provide our service members, allies, friends, and our Nation with the most capable air and missile defense system possible.

Terminal High Attitude Area Defense System Overview (THAAD)

The Department of Defense is committed to fielding an advanced capability to defend against tactical ballistic missiles as soon as possible. THAAD is designed to provide critical defense against short and medium range ballistic missiles. As a result, MDA is funding and manufacturing four THAAD fire units for the Army in an accelerated fielding that will begin

in 2009. This investment represents an initial THAAD capability for the warfighter and the next major step towards a comprehensive, layered theater ballistic missile defense. Follow-on THAAD upgrades are planned in future budgets to meet an ever increasing and evolving threat.

Cruise Missile Defense

In the world today, there exists a real and growing threat from land attack cruise missiles. Cruise missiles are inherently very difficult targets to detect, engage, and destroy because of their small size, low detection signature, and low altitude flight characteristics. When armed with a weapon of mass destruction warhead, the effects from a cruise missile could be catastrophic. The Army's Cruise Missile Defense Program is an integral piece of the Joint cruise missile defense architecture. Critical Army components of the Joint cruise missile defense architecture are provided by the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), the Surface-Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM), the Patriot Missile Segment Enhancement Missile, and an integrated fire control capability inherent in the Integrated Air and Missile Defense System of Systems. We are also working closely with the Joint community to assure development of doctrine that synchronizes our military's full capabilities against the cruise missile threat.

The Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System brings a critically needed capability to detect, track, and identify cruise missile threats. The system will support engagements using the Surface-Launched Advanced Medium Range Air-to-Air Missile, the Navy Standard Missile, and the PATRIOT/MEADS weapon systems by providing precision tracking and 360-degree wide-area and over-the-

horizon surveillance of land-attack cruise missiles. The Surface-Launched Advanced Medium Range Air-to-Air Missile will provide maneuver forces with a critical, beyond line-of-sight engagement capability to counter the cruise missile threat, as well as unmanned aerial vehicle threats, over an extended battlespace. The Surface-Launched Advanced Medium Range Air-to-Air Missile uses the existing Joint Advanced Medium Range Air-to-Air Missile currently used by the Air Force and the Navy, thereby capitalizing on Joint commonality on the battlefield.

Force Protection

A significant danger in Operation Iraqi Freedom and Operation Enduring Freedom is posed by insurgents employing indirect-fire tactics of quick-attack, low-trajectory, urban-terrain-masked rocket, artillery, and mortar strikes against U.S. forward operating bases in Iraq. To combat this threat, the Army developed Counter-Rocket, Artillery, Mortar (CRAM), an integrated solution of capabilities to provide warning and intercept of rocket, artillery, and mortar threats. CRAM provides a holistic approach to this emerging menace. Horizontal integration across the core functions—command and control, shape, sense, warn, intercept, respond and protect—is providing an integrated modular and scalable capability. This capability provides timely warning of mortar attacks, intercept and defeat of incoming rounds, and accurate location of insurgent mortar crews, enabling a rapid, lethal response. CRAM takes advantage of existing systems and capabilities, combining them in a system of systems architecture to support the warfighter on today's battlefield. The current CRAM solution is truly Joint, in that it uses fielded systems from the Army, Navy and Air Force along with a commercial-off-the-shelf system. To date, CRAM has been supported solely through supplemental

appropriations. Recognizing the enduring nature of the rocket, artillery, and mortar threat, the Army is exploring ways, to include the use of directed energy, to enhance this capability across all of the core functions, thereby making it even more relevant to the future modular force.

Conclusion

Madam Chairman, the Army, a fully contributing member of the Joint team, is relevant and ready, fighting the war on terrorism, and deterring aggression throughout the world, while transforming to meet future threats. With its responsibilities for Ground-Based Midcourse Defense, THAAD, and PAC-3/MEADS Combined Aggregate Program, the Army is an integral part of the Joint team to develop and field an integrated missile defense for our Nation, deployed forces, friends, and allies. In my role as the Joint Functional Component Commander for Integrated Missile Defense, I will continue the development of a Joint BMDS capability to protect our Nation, deployed forces, friends, and allies. The Army has stepped up to the land-attack cruise missile defense challenge by aggressively developing the Joint, integrated, and networked sensor-to-shooter architecture necessary to defeat the emerging threat. The Fiscal Year 2008 budget proposal continues the transformation of the Army's air, space, and missile defense force to support the Army's future force, the Joint Integrated Air and Missile Defense System, and our global BMDS. Transformation will continue to define the characteristics of the emerging air, space, and missile defense force and determine how it can best support the future force operating in a Joint, interagency, intergovernmental, and multinational environment.

I appreciate having the opportunity to speak on these important matters and look forward to addressing any questions you or the other Committee members may have.

FOR OFFICIAL USE ONLY
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES
SUBCOMMITTEE ON
STRATEGIC FORCES

TESTIMONY OF

DR. CHARLES E. MCQUEARY

DIRECTOR, OPERATIONAL TEST AND EVALUATION

OFFICE OF THE SECRETARY OF DEFENSE

BEFORE THE UNITED STATES HOUSE

ARMED SERVICES SUBCOMMITTEE ON STRATEGIC FORCES

March 27, 2007

FOR OFFICIAL USE ONLY
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES
SUBCOMMITTEE ON
STRATEGIC FORCES

Dr. Charles E. McQueary
Director, Operational Test and Evaluation
Office of the Secretary of Defense

Madam Chairman, Congressman Everett, distinguished Members of the Committee, good afternoon. I am pleased to have this opportunity to speak to you about the testing of the Ballistic Missile Defense System, or BMDS. I will briefly cover four areas.

First, I will review what I believe are the major Missile Defense Agency's test accomplishments during the past year.

Second, I will give you my current assessment of the capability of BMDS.

Third, I will provide a status of the recommendations in the Fiscal Year 2005 and Fiscal Year 2006 annual reports published by DOT&E.

Fourth, I will discuss the factors that will limit my ability to provide a thorough Block 6 assessment as required by the Fiscal Year 2006 National Defense Authorization Act.

First: The Results

MDA had a good year of testing in 2006.

For the first time in the Ground-based Midcourse Defense program, MDA successfully intercepted a "simple" threat-representative target with an operational booster carrying an operational kill vehicle. Also, for the first time, MDA used data from an operational radar to generate the weapon task plan sent to the interceptor by the fire control system.

Aegis Ballistic Missile Defense was two for two in intercepts of medium-range separating targets. Using Aegis cruisers, operational connectivity, and simulated targets, MDA demonstrated simultaneous ballistic missile defense and ship self-defense capabilities in preparation for a live flight test in 2007.

From November 2005 through January 2007, the Theater High Altitude Area Defense was four for four on successful flights of the production interceptor. Two of these test flights involved intercept of targets, and both of those intercept flight tests were successful hits.

MDA's ground test program was active, robust, and disciplined, demonstrating BMDS capability and interoperability.

Second: My Assessment

At the 2005 hearing, DOT&E reported that the integrated ground test results indicated the testbed had the potential to defend against a limited attack, under certain conditions. However, difficulties in the flight test program delayed confirmation of that capability.

During the 2006 hearing, DOT&E reported that the results of the ground tests demonstrated that integration, interoperability, tactics, doctrine, and procedures, were adequate to increase confidence in these aspects of the system. The MDA testing program during 2005 was adequate and appropriate to the developmental maturity of the BMDS.

Today, I can state that the BMDS has demonstrated a limited capability against a simple foreign threat. Coupled with the success of other element-level testing and MDA's integrated ground tests, the BMDS is definitely maturing.

My assessment is bolstered by the fact that MDA is increasing the operational realism of each successive test.

Third: The Recommendations

Madam Chairman, in your invitation to address the committee, you asked me to provide an assessment of MDA's implementation of the recommendations in the last two DOT&E annual reports. I will do that now.

There were 26 recommendations in the Fiscal Year 2005 annual report. Only 4 recommendations are still open, and MDA is acting on each of them. Two involve on-going data collection, one involves the future test schedule, and one deals with the test planning process.

There are 15 new recommendations in the Fiscal Year 2006 annual report. Many of these new recommendations involve demonstrations of specific capabilities during actual intercept tests. MDA is actively considering these recommendations, and has already added several to its test schedule.

As you know, by law I can only advise MDA on its developmental test program. I am satisfied with MDA's response to the recommendations in our annual reports. I am pleased that General Obering and his staff recognize the value of our suggestions and recommendations. A more capable BMDS is our mutual goal.

Fourth: The Challenges

Despite these successes, BMDS is still maturing as a system which makes it difficult for me to assess Block 06 capability as required by the Fiscal Year 2006 National Defense Authorization Act.

First, to be confident in my assessment of effectiveness I need validated models and simulations for the BMDS. They don't exist today because MDA doesn't have enough flight test data to anchor them. MDA, the multi-service BMDS Operational Test Agency team, and DOT&E personnel are working together to solve this problem. However, there may be insufficient time to fix this problem before we finalize the Block 06 report.

While these models and simulations will be essential to proving the operational capability of BMDS, we cannot use models and simulations as substitutes for live testing. Both General Obering and I agree on this important issue. MDA's testing must be sufficient to have high confidence that the models and simulations are valid representations of the actual performance and capability of the BMDS.

Second, I will have difficulty assessing suitability. BMDS has not operated long enough to gather statistically significant data on its reliability, availability, and maintainability, although the tests to date are very encouraging. MDA and the warfighters are collecting the data, but the amount may be insufficient to reach any confident conclusions about the suitability of BMDS.

In conclusion, MDA experienced a good year with its ground and flight test programs. Individual element successes indicate their capabilities. Integrated ground testing of the BMDS is demonstrating that the warfighters understand and can operate the system confidently and effectively. There is still a long way to go, but MDA's disciplined and principled approach to flight and ground tests is starting to pay real dividends.

This concludes my remarks and I welcome your questions.

STATEMENT OF BRIAN R. GREEN

DEPUTY ASSISTANT SECRETARY OF DEFENSE

FOR STRATEGIC CAPABILITIES

OFFICE OF THE UNDER SECRETARY OF DEFENSE FOR POLICY

BEFORE THE STRATEGIC FORCES SUBCOMMITTEE

HOUSE ARMED SERVICES COMMITTEE

ON FY08 BUDGET REQUEST FOR MISSILE DEFENSE PROGRAMS

MARCH 27, 2007

STATEMENT FOR THE RECORD

Introduction

Chairman Tauscher, Ranking Member Everett, Members of the Subcommittee, it is a pleasure to appear before you today. I am here to discuss missile defense in the context of national defense strategy and to review our progress in carrying out the President's ballistic missile defense policy.

New Strategic Environment

Ballistic missile defense remains a top priority of the Administration. This priority is driven by needs defined by the new and evolving strategic environment, and continues to be validated by recent events.

Our national security focus changed in the early 1990s with the demise of the Soviet Union. We realized that we faced a broader range of threats from a broader range of aggressive and unpredictable adversaries. Threats posed by rogue nations, such as Iran and North Korea, and transnational non-state actors, such as al-Qaida, continue to challenge our notions of deterrence and defense. Surprise – strategic, tactical, and technical – is an expected feature of the security landscape. While deterrence remains the cornerstone of our strategy, we recognize an increased risk that deterrence may fail. Under such circumstances, missile defenses are highly desirable because they both reinforce deterrence and hedge against its failure.

Potential adversaries see ballistic missiles armed with Weapons of Mass Destruction (WMD) as low-cost, high impact asymmetric options to counter other U.S.

military advantages. WMDs and ballistic missile delivery vehicles have become the weapon of choice for countries seeking to coerce their neighbors and limit U.S. freedom of action. LTG Michael Maples, Director of the Defense Intelligence Agency, said earlier this year that "after global terrorism, the proliferation of weapons of mass destruction remains the most significant threat to our homeland, deployed forces, allies and interests."

The threat from the increasing numbers and capabilities of ballistic missiles is pronounced. This threat is highlighted by proliferation of ballistic missiles by countries such as North Korea and China, and secretive networks, such as the one run by A.Q. Khan, selling nuclear technology and expertise. Not only is the threat from the numbers and capabilities of ballistic missiles increasing, but the group of countries possessing ballistic missiles includes some of the world's most threatening and least responsible regimes, such as North Korea and Iran.

As LTG Michael Maples recently testified before the Senate Select Committee on Intelligence in unclassified session, "North Korea has an ambitious ballistic missile development program and has exported missiles and missile technology to other countries, including Iran and Pakistan. North Korea continues to develop the Taepo Dong 2, which could reach parts of the United States and is capable of carrying a nuclear payload. On 4 July 2006, North Korea conducted seven widely-publicized launches. The Taepo Dong 2 space launch vehicle / intercontinental ballistic missile was flight-tested for the first time and failed shortly after launch. Despite the failure of the Taepo Dong 2, North Korea successfully tested six theater ballistic missiles, demonstrating the capability

to target U.S. forces and our allies in South Korea and Japan. North Korea is also developing a new intermediate-range ballistic missile and a new short-range, solid-propellant ballistic missile. Export of North Korea ballistic missiles will continue to be a concern."

Turning to the Middle East, Iran represents a dangerous nexus, combining a vigorous ballistic missile program, a desire to develop nuclear weapons, and a history of support for international terrorism. Terrorism has been part of Tehran's arsenal for decades. In fact, before the 9/11 attacks, more Americans had been killed by Iranian-backed terrorists like Hezbollah than by any other terrorist group. Iran has made ballistic missiles an important part of its defense strategy. As former Director of National Intelligence, John Negroponte, testified last year, "The danger that it will acquire a nuclear weapon and the ability to integrate it with the ballistic missiles Iran already possesses is a reason for immediate concern. Iran already has among the largest inventory of ballistic missiles in the Middle East, and Tehran views its ballistic missiles as an integral part of its strategy to deter – and if necessary retaliate against – forces in the region, including U.S. forces."

In this environment, recent statements by Iranian President Ahmadi-Nejad threatening the United States and its friends in the region, most notably Israel, are of particular concern. In October 2005, Ahmadi-Nejad declared that "Israel should be wiped off the map. And God willing, with the force of God behind it, we shall soon experience a world without the United States and Zionism." He also said that "anybody who recognizes Israel will burn in the fire of the Islamic nation's fury."

Iran also continues to develop ballistic missiles of increasing range and sophistication that may one day be able to deliver a nuclear weapon. Lt. Gen. Michael Maples recently testified before the Senate Select Committee on Intelligence that Iran continues its efforts to develop and acquire ballistic missiles capable of striking Israel and Europe. Iran's ballistic missiles already cast a shadow over U.S. friends and allies, and our deployed forces, in the Middle East. Moreover, the Intelligence Community assesses that Iran would be able to develop an ICBM before 2015 if it chose to do so. The addition of nuclear warheads and an ICBM that could reach the U.S. would further extend Iran's ability to coerce others and threaten the U.S.

Iran has also claimed it is pursuing a space-launch capability. Although space launch vehicles can be used for peaceful purposes, if Iran were to achieve such a capability, it would also be demonstrating the key technologies needed to deliver payloads at intercontinental ranges.

Overall Defense Strategy and U.S. Defense Goals

Ballistic missile defenses remain an important part of our overall defense strategy. Last year, the Department of Defense released the 2006 Quadrennial Defense Review (QDR). The QDR recognized U.S. superiority in traditional warfare, but stressed that improvements are needed in non-traditional warfare. The QDR identified a number of priorities to operationalize the National Defense Strategy, including: 1) defending the homeland in depth; 2) shaping the choices of countries at strategic crossroads; and 3) preventing hostile states and non-state actors from acquiring or using weapons of mass

destruction. Ballistic missile defenses can make important contributions to each of these priorities. They can be part of a layered defense against the use of ballistic missiles to attack the population and territory of the U.S., its deployed forces, or its friends and allies. They can also help dissuade countries from choosing to compete militarily with the U.S by increasing the cost of competition and decreasing the certainty that a ballistic missile attack will succeed.

The 2001 QDR outlined four broad defense policy goals: to assure, dissuade, deter, and if necessary, defend and defeat. Missile defenses support these goals in the following ways:

Assure allies and friends that threats by nations armed with ballistic missiles will not be able to deter the U.S. from fulfilling its security commitments, coerce our allies, or undermine a coalition;

Dissuade potential adversaries from investing in or developing ballistic missiles by reducing the value of such weapons;

Deter ballistic missile attacks and threats by reducing an adversary's confidence in the success of an attack; and

Defeat missile attacks against the United States, its deployed forces, and its friends and allies in the event that deterrence fails.

Presidential Direction

Upon taking office, President Bush embarked on a bold new course for strategic deterrence and defense. The President issued NSPD-23, National Policy on Ballistic

Missile Defense. The President directed us to field an initial missile defense capability in 2004 consisting of ground- and sea-based interceptors, additional PATRIOT units, and sensors on land, at sea, and in space. The initial capability was only a starting point. Using an evolutionary acquisition approach, we are improving these capabilities over time to meet the changing threat and to take advantage of emerging technology. We must continue a robust research and development effort, in addition to fielding adequate quantities of interceptors.

As technology changes over time, so will the composition of our missile defense force. There will be no fixed, final force structure. We will change the number and locations of our missile defenses to counter emerging threats and to take advantage of geographic opportunities. Some threats, like Libya, may recede, while others, like Iran, will grow. Our missile defenses must have global reach to counter threats wherever they may appear.

The U.S. is making steady progress in meeting these goals. We now have ground-based interceptors deployed in Alaska and California; sea-based interceptors available for deployment aboard Aegis Cruisers and Destroyers; more PATRIOT units; sensors on land, at sea and in space; an evolving command and control system to tie it all together; and trained warfighters on station.

International Missile Defense Cooperation

International cooperation is one of the cornerstones of our national policy on ballistic missile defense. In 2002, the President directed that missile defense cooperation

will be a feature of U.S. relations with close, long-standing allies, and an important means to build new relationships with new friends. The U.S. has made progress in carrying out this direction, with cooperative efforts underway with many countries. Today, more than 15 countries (including nearly 10 in NATO alone) are engaged in missile defense efforts of some kind, whether by hosting key facilities or assets on their territory or actively discussing this possibility, pursuing R&D programs, signing cooperative agreements with the U.S., or maintaining capabilities. The list includes Australia, the Czech Republic, Denmark, France, Germany, Italy, Israel, India, Japan, the Netherlands, Poland, Taiwan, Ukraine, U.S., and the U.K. And I would point out that Russia clearly believes in the value of missile defense as it continues to maintain a missile defense system around its major population center, Moscow, and has developed defenses against shorter-range missiles. Let me briefly describe some of these efforts.

- North Korea ballistic missiles pose a direct and immediate threat to Japan. This threat encouraged Japan to seek closer cooperation with the U.S. The Japanese are now one of our pre-eminent missile defense partners.
    - Japan is deploying a multi-layered system comprised of upgraded Aegis ships with Standard Missile (SM) -3 interceptors, PATRIOT Advanced Capability (PAC) -3 systems, new and refurbished warning radars and an upgraded command and control system.
    - Japan and the U.S. are co-developing the SM-3 Block IIA, the next-generation sea-based interceptor. This larger, more capable interceptor will enable Aegis ships to intercept longer-range missiles.

- Japan agreed to host a U.S. forward-based X-band missile defense radar.
- Three U.S. Aegis engagement ships are forward-deployed to Japan, along with several more missile defense surveillance and tracking ships.
- We deployed a U.S. PAC-3 battalion to Japan last year.
- We are also deepening coordination of our missile defense operations and to share missile defense information.

- We are cooperating with Israel on the Arrow System Improvement Program. The Arrow System is now deployed and protecting Israeli citizens and property.
- Germany, Italy and the U.S. are co-developing the Medium Extended Air Defense System, a replacement for PATRIOT systems in the next decade.
- We have upgraded and are testing the early warning radar at Fylingdales, U.K. this year; a second early warning radar in Thule, Greenland, is scheduled to be upgraded and tested in a few years.
- NATO is developing the Active Layered Theater Ballistic Missile Defense system, a command and control backbone for member countries' theater missile defenses. In addition, the NATO Feasibility Study released in 2005 confirmed that missile defenses to protect European citizens are, indeed, feasible.
- We have concluded agreements with the U.K., Japan, Australia, Israel, Italy, and Denmark to facilitate government-to-government and industry-to-industry missile defense cooperation. We are also holding discussions or working on technology efforts with Germany, India, the Netherlands, Spain, Ukraine, and France.

In his 2002 direction, the President specifically called for cooperation to build new relationships with friends, like Russia. While that prospect at times seems remote, there are positive developments to report. We are continuing negotiations on a Defense Technical Cooperation Agreement with Russia to facilitate both government-to-government as well as industry-to-industry missile defense cooperation, and we continue to seek practical areas of cooperation with Russia on a bilateral basis as well as in the NATO-Russia context.

U.S. Missile Defenses in Europe

In January of this year, President Bush directed us to proceed with discussions on basing U.S. missile defenses in Europe. These defenses are intended to counter the increasing threat from Iranian missiles. While our intelligence community assesses that Iran would be able to develop an ICBM before 2015 if it chose to do so, we must start now in order to field an initial capability before 2011.

Current plans call for basing in Poland ten Ground-Based Interceptors similar to those currently deployed in Alaska and California, and a midcourse radar in the Czech Republic. The midcourse radar is an existing radar in use at the Reagan Test Range. It will be refurbished and moved to the Czech Republic. Negotiations are ongoing and, pending a successful outcome, work is planned to begin at the sites in 2008. These missile defense assets would be integrated with existing radars in Fylingdales, U.K., and Thule, Greenland, as well as the U.S. Ground-based Midcourse Defense system,

consisting of, for example, existing missile defense interceptors located in California and Alaska.

Here are the key benefits of U.S. missile defense deployments in Europe:

- It would be capable of intercepting not only intercontinental ballistic missiles but also intermediate-range ballistic missiles launched out of the Middle East. The U.S. goal is to optimize the defensive coverage of both Europe and the U.S.
- With the protection afforded by these U.S. defensive capabilities in Europe, NATO member states could resist attempts by hostile states to intimidate or coerce the Alliance or its members from taking actions in a coalition.
- Missile defense provides another avenue for burden sharing. If negotiations are successfully concluded, Poland and the Czech Republic would be providing a significant contribution to the collective security of the NATO Alliance by hosting BMD assets.

Criticism from Russia

Ten ground-based missile defense interceptors and an X-band radar for midcourse tracking and discrimination of warheads located in central Europe would have no capability against an ICBM launched out of Russia at the United States in a one-on-one engagement. Furthermore ten interceptors are simply not a threat to Russia and cannot diminish Russia's deterrent of hundreds of missiles and thousands of warheads.

We have been transparent with Russia with our plans and capabilities. Senior State, Defense, and MDA officials have frequently briefed senior Russian counterparts,

as well as their experts, on the proposed U.S. European missile defense deployments in numerous locations in Washington, D.C., Moscow, Brussels, and elsewhere. Senior Russian officials as well as their experts understand the limited capabilities of the interceptors and the X-band radar, including why the European-based assets would have no capability against Russian ICBMs launched at the United States, and how it is optimized for engaging ballistic missile threats launched out of Iran. Russian officials, and their experts, fully understand the technical limitations and parameters of the proposed defensive capabilities.

Providing Russia transparency and predictability in our missile defense policy, plans, and programs is certainly in the interest of the United States. We will continue to keep Russia informed about the status of our programs and decisions, explore the possibility of additional confidence-building measures, and seek opportunities to cooperate on missile defense in the future.

Furthermore, we are disappointed that Russia has chosen to link possible withdrawal from the INF Treaty with our discussion with NATO Allies about a missile defense system to address a shared threat from the Middle East. Russia's potential interest in withdrawing from the INF Treaty is not new. Russia discussed possible withdrawal from the INF Treaty with us in the United States two years ago, well before the President's decision in mid-January to initiate negotiations regarding missile defense facilities in Europe. The United States has declined to withdraw from the INF Treaty.

Conclusion

In conclusion, we have made great progress in meeting the goals the President set over four years ago. Missile defenses are an essential element of our overall national security strategy to dissuade and deter rogue nations from acquiring or using ballistic missiles and to protect our citizens from the threat of terrorist attack. As the threat of ballistic missiles and WMDs increases, more allies and friends are choosing to work with us on missile defense projects. Given these results, we will continue the current policies. Subject to your questions, this concludes my statement.

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD

MARCH 27, 2007

QUESTIONS SUBMITTED BY MS. TAUSCHER

Ms. TAUSCHER. The Administration has made cooperation with friends and allies a key element of the missile defense program. That said, I understand that sharing classified information and technology with allies remains a key challenge. To what extent is National Disclosure Policy preventing us from sharing missile defense information and technology with allies? What needs to be done to fix this? Are legislative changes required?

Secretary GREEN. As you note, the Administration places a priority on cooperation with friends and allies to address the growing ballistic missile threat. However, before the Department can offer to sell any missile defense system to a foreign country, or to release performance related data in support of a potential sale, it must complete three reviews. First, critical technologies must be reviewed to ensure that appropriate technology security measures are established prior to an affirmative decision for release. Second the release of classified military information and technical data must be approved by the interagency National Disclosure Policy Committee. Third, DoD must assess whether there are any Missile Technology Control Regime compliance issues. While this process may at times be challenging, it is serving its intended purpose of ensuring valuable U.S. technology does not end up in the wrong hands or is not used for purposes at odds with U.S. interests.

As previously conveyed in DoD's response to your recent letter concerning release of THAAD performance data to Israel, these processes are well established with respect to export of missile defense systems and supportive of our goals with regard to cooperation, and we believe that no legislative changes are required.

Ms. TAUSCHER. The FY08 budget request includes funding for two additional GMD intercept tests. How many GMD tests can the program effectively execute in a given year? If Congress provided funds for an additional GMD flight test in FY08, would that be useful?

General OBERING. The GMD flight test program has been sized for two system level flight tests annually for several reasons.

- Due to the complexity of integrating new assets with existing assets and new software with existing software, verifying the software and asset test readiness, managing risk, and executing pre-mission system level testing and checkout, pre-test preparation time is continually increasing.
- The process of mission planning, conducting the test, analyzing the data and incorporating the lessons learned into the next test takes around 6 months.

Additional funding for more than two system level flights tests in a year, if provided by the Congress, would not be useful because trying to add the tests would significantly increase both schedule and program risk for the reasons stated above.

Ms. TAUSCHER. In the FY08 budget request, MDA is proposing that the United States deploy ten ground-based interceptors in Europe. Why does MDA only plan ten missiles in Europe? What analysis was done to support a decision to move forward with ten GBIs instead of 5, 30, or 40 GBIs?

General OBERING. [The information referred to is classified and retained in the committee files.]

Ms. TAUSCHER. In its March 2007 report, "Missile Defense Acquisition Strategy Generates Results but Delivers Less at a Higher Cost," GAO stated that using research and development funds to purchase fielded assets reduces cost transparency because these dollars are not covered by the full-funding policy for procurement. GAO therefore recommended that the Secretary of Defense request and use procurement funds, rather than RDT&E funds, to acquire fielded assets. This would require MDA to request money in full for the purchase of assets and produce an enhanced audit trail. In response to their recommendations, DOD responded that its flexible approach is appropriate because in an uncertain threat environment, MDA must be able to accelerate or modify development of BMDS elements as may be required. The Department further asserted that without this flexibility, the continuous development of missile defense assets would be inhibited. Please explain the effect that fully funding the manufacture of fielded assets, such as interceptors and their subsequent upgrades, would reduce the Missile Defense Agency's flexibility to address new threats?

General OBERING. The Ballistic Missile Defense System (BMDS) is a single, integrated development program that provides layered defenses for the United States, our deployed forces, friends and allies against ballistic missiles of all ranges in all phases of flight. In 2002 the Department recognized that this complex and technically challenging mission required innovative approaches for developing and acquiring missile defenses and charged the Missile Defense Agency (MDA) with implementing a capabilities based requirements process to accomplish this mission.

A key advantage of the capabilities based approach is that it provides MDA with the ability to make knowledge-based decisions and incrementally fund and field increments of capability that best support fielding missile defense assets responsive to the threat. This flexible approach ultimately results in a reduced cycle time that enables MDA to quickly deliver a militarily useful missile defense capability to the warfighter.

The use of procurement funding would seriously hinder this approach as a viable development and acquisition strategy by lengthening this cycle time and thereby eroding the Agency's ability to provide a timely response to current and evolving ballistic missile threats. Analysis of data compiled by GAO in its March 2006 report *Defense Acquisitions: Assessments of Selected Major Weapons Programs* shows that the average major defense acquisition program has a cycle time of six years between program start and authorization for production. So if MDA had been pursuing a traditional acquisition program since 2002 with a requirement to use procurement funding for fielded assets, the nation would likely have no missile defense capability today. Instead, for the first time in its history, the United States has a missile defense capability composed of numerous ground- and sea-based interceptors as well as fixed and transportable radars, all integrated through a battle management command and control system. Imposing the full funding policy on the BMDS would force the cancellation of most of the Agency's development efforts as well as delays in fielding of near-term programs currently resourced in the FY08 President's Budget request. These are the assets we can least afford to delay. The current capabilities based approach using RDT&E funds mitigates this issue and provides the Agency with the flexibility to develop and field missile defense assets in the shortest possible time.

The ballistic missile threats of today and tomorrow are both uncertain and evolving. In this environment, the traditional approach to acquiring defense assets with procurement funds conflicts with the urgent need to develop and field missile defenses quickly. MDA has proven that missile defenses can be developed and fielded in a more compressed timeframe as compared to the traditional acquisition approach. The Agency can also implement reporting that provides the level of transparency and accountability the Department of Defense and Congress have come to expect. Continuing to use RDT&E funds in conjunction with a capabilities based approach will enable the Agency to continue developing and fielding missile defenses in the shortest possible time, and thereby provide the warfighter with a faster and more decisive response to the evolving ballistic missile threats. The use of procurement funds and use of the traditional acquisition process should be deferred until substantial additional BMDS development has been completed.

Ms. TAUSCHER. ABL and KEI have been discussed as the two viable alternatives to conduct boost-phase intercepts. In January 2005, MDA established ABL as the primary boost phase defense element, but continued KEI's development as risk mitigation. The Missile Defense Agency is considering a down select or source selection that would decide whether ABL or KEI would be the BMDS boost phase capability. A decision on both element's futures was planned for 2008, but ABL recently announced that the lethality test that will demonstrate the element's critical technologies has been delayed until 2009. Will the decision on ABL and KEI be delayed until after ABL's lethality test is completed? If ABL's lethality test is delayed past 2009, will the agency continue to invest in both ABL and KEI?

General OBERING. The Airborne Laser is the primary Ballistic Missile Defense element being developed for providing a boost phase capability. As I stated in my written testimony, either ABL or the kinetic energy booster will be selected to provide the primary boost phase capability before 2010 based upon information gathered during initial testing.

Based on the Defense Science Board's recommendation, we are considering KEI's booster development effort as an alternative boost phase capability in the event ABL does not meet critical knowledge points in its test program. If the Airborne Laser meets its knowledge points, and other factors are conducive to continuing the ABL we will not pursue KEI as a boost phase defense segment within the Ballistic Missile Defense System.

The Airborne Laser is on track to conduct a lethal shoot down of a ballistic missile target in 2009 and the Kinetic Energy Interceptor is on track to conduct a flight

test of its high acceleration booster in 2008. Each test contributes essential knowledge about the technical feasibility of these approaches; knowledge that is required to make an informed decision.

Ms. TAUSCHER. The ABL program experienced a number of technical problems during Fiscal Year 2006 that may impact future decisions for the BMDS program. The problems which were partially due to Beam Control/Fire Control software difficulties, but were also caused by integration and testing of the system including unexpected hardware failure resulted in a 3-1/2 month delay in its ground test program. The program planned to demonstrate its critical technologies in 2008 during a lethality demonstration. However, fiscal year 2006 delays have pushed the planned lethality demonstration into 2009. Have all software problems been resolved? If not, what is the plan to correct all issues and will the corrective actions further delay the lethality test planned for 2009.

General OBERING. All required software issues encountered during FY06 have been fixed; however, as of May 21, not all software fixes have been tested in flight. The two major issues encountered during ground test were the automated engagement sequence through propagation of the Surrogate High Energy Laser (SHEL) and the ability to place the required energy on target, i.e. strehl. Both issues have been addressed and have undergone regression testing on the ground. Final verification will occur during the on-going flight test program that is expected to be completed in July, 2007. The 2009 lethality test date was set based upon a joint contractor/program office schedule risk assessment that considered the time required to resolve known technical issues. Further delays to the 2009 lethality test are not anticipated at this time.

Ms. TAUSCHER. A recent end-to-end test conducted by the GMD system was successfully executed in September 2006 for one engagement scenario. According to GMD personnel, the interceptor used in this test had been retrofitted with more reliable components. What modifications were made to the test interceptor prior to the test? How similar is the test interceptor, including its booster and exoatmospheric kill vehicle, to interceptors already emplaced in silos? Did the modification to the test interceptor lead to any delays in the test? If so, how did the delay affect GMD's test schedule? Does MDA plan to retrofit all emplaced interceptors to the configuration of the test interceptor? If so, when will all retrofits be completed and at what cost?

General OBERING. As components were being upgraded, they were added to the test interceptor to flight test the upgrades prior to deployment to the field. The key change was to retrofit the Polyacrylonitrile (PAN) Stage One booster nozzle with a rayon nozzle, which was qualified and installed on the interceptor on June 8, 2006. Interceptors began fielding with this nozzle following this successful flight test. The FTG–02 test interceptor was also retrofitted with software upgrades in the Exoatmospheric Kill Vehicle (EKV) and Booster Avionics Module (BAM). Again, these upgrades had completed ground testing before flight testing. Due to a suspect potentiometer, the Stage 2 and 3 Thrust Vector Control Actuators were replaced with a like unit which was not suspect.

One major goal of the GMD flight test program is to test operationally configured GBI with as few changes as possible. The primary differences are instrumentation to gather data from the test GBI and the addition of required range safety hardware, such as a flight termination system. The GBI used in FTG–02 did have some hardware differences from the GBI which were emplaced at that point. The differences were the upgrades described above. These hardware upgrades began fielding this year, and the current fielding configuration matches (except for instrumentation and range safety test hardware) the GBI used in FTG–02. Software flown on FTG–02 included enhanced capabilities for the EKV. These capabilities have begun fielding and will be completed by June 2007.

Due to the overwhelming success of FT–1 in December 2005, the decision was made to change FTG–02 into a full Ballistic Missile Defense System (BMDS) test including a threat-representative target. This increased test risk by adding significantly to the pool of assets required and to the overall test complexity. An additional flight test was modified (FT–04–1) prior to FTG–02 from a radar check-out test to a full BMDS system test with a simulated GBI. FT–04–1 was successfully conducted on 23 Feb. 06 and served to reduce overall BMDS risk sufficiently to enable additional test objectives to be accomplished in FTG–02 well beyond those originally planned. This contributed to the delay of FTG–02 and allowed sufficient time to incorporate several upgrades to the interceptor which also served to mitigate risk. The success of FTG–02 enabled early demonstration of test objectives originally planned for completion through FTG–04. Accordingly, additional BMDS sensors and test objectives have been included in FTG–04, thereby increasing the value of FTG–04 to overall BMDS verification.

MDA plans to take advantage of the periodic GBI maintenance activities referred to as the GBI Refurbishment program to upgrade interceptors LDC 1–17 to the current configuration. The GBI Refurbishment program was modeled after the Intercontinental Ballistic Missile periodic maintenance, which removes each missile on a rotation schedule and performs quality, shelf life and performance checks. The GMD plan is to remove the first interceptor just short of the five year point. The cost for the refurbishment program, to include both periodic maintenance and all upgrades and improvements for the first 17 GBIs emplaced, is contained within the 2008 Presidents Budget and totals $72.5 million. MDA plans to complete the periodic maintenance and GBI retrofits in Fiscal Years 2009 and 2010. The EKV software upgrade for all emplaced interceptors will be completed by the end of June 2007 at a cost of $3.2M. All emplaced interceptors beyond LDC–17 already have rayon Stage One nozzles and the other incremental improvements listed above.

Ms. TAUSCHER. The committee has been told that one of the key elements limiting the current missile defense test program is the lack of infrastructure. What specific actions can be taken to improve MDA's testing infrastructure? What are the costs associated with those steps?

General OBERING. MDA has made focused infrastructure investments to support both flight and ground testing.

For flight test events, MDA has successfully integrated the service test ranges to meet the test requirements of the Ballistic Missile Defense System (BMDS). MDA relies on the services to maintain the assets that fall under the Major Range and Test Facility Base with oversight from the Department of Defense Test Resources Management Center. Given the unique testing requirements and constraints, MDA has limited influence on infrastructure at the ranges. To augment the capabilities of the service test ranges, MDA has focused investments on mobile test assets and upgrades to the MRTFB assets that directly support those requirements. MDA recently completed development of two transportable telemetry systems. One is land-based at the Naval Air Station, Whidbey Island; the other is hosted on the Pacific Collector, an ocean going ship. Both assets provide a great deal of scenario flexibility. MDA is also developing a transportable S/X-band radar to further enhance our data collection capability. For ground test events, MDA has developed dedicated labs that provide element representations to support dedicated system-level testing. MDA recently completed development of a dedicated C2BMC test lab and recently initiated development of a test support capability to provide a more robust SBIRS emulation in our ground testing. We are also developing plans to transition one of the GMD tests labs to provide dedicated system-level test support. With these initiatives and investments, MDA is well-position to support future test requirements.

For ground test events, additional system test infrastructure would provide for a more robust test capability, including Command, Control, Battle Management, and Communications (C2BMC) infrastructure and a Ballistic Missile Defense System (BMDS) test control center at the Missile Defense Integration and Operations Center (MDIOC). This would enable BMDS interoperability and performance testing of the integrated BMDS without impacting concurrent system development and fielding activities.

While the President's Budget fully supports MDA flight and ground testing, these specific items would further improve MDA's ability to robustly test the BMDS:

- System ground test infrastructure (C2BMC and test control center) at the MDIOC ($10M)
- Dedicated mobile satellite communications shelter to support testing of deployed test assets. ($10M)
- Upgrades to Vandenberg Air Force Base Range Safety and Telemetry infrastructure to support classified operations and higher data rates and integrate secure communications throughout the base's test facilities ($15M).

These areas will be given priority in our PBR–09 planning process.

Ms. TAUSCHER. One of the key limiting factors of MDA's test program has been the lack of sufficient number of missile defense targets. Do you currently have a sufficient amount of targets to execute your testing program? If not, what can we do to improve the number of targets? Would additional funds in this area be helpful?

General OBERING. MDA Targets and Countermeasures Directorate (MDA/TC) presently has a sufficient number of target vehicles to cover the current Ballistic Missile Defense System (BMDS) test plan. However, MDA does not have the funding to provide spare targets in support of test plans.

The Flexible Target Family (FTF) provides greater performance capability, a reduced build time, a portfolio-wide systems engineering approach, and greater commonality of parts. In this way, the FTF offers assurance of having the target hardware needed to adjust to changing test requirements with minimum lead time.

Building the Flexible Target Family (FTF) of interchangeable target components enhances the BMDS test program. A ready inventory of components common to a number of target configurations that can be used by the BMDS test program would implement significantly reduced turnaround times.

Additional funding of the FTF targets and countermeasures would allow greater flexibility toward inventory-based procurement and management of targets to mix and match to reduce lead time.

Ms. TAUSCHER. The committee has been informed that the Missile Defense Agency plans to reduce the total number of THAAD flight tests by three. What were the key reasons behind the decision to reduce the number of THAAD flight tests? What are the risks associated with reducing the number of THAAD tests?

General OBERING. The philosophy of the THAAD flight test program is to conduct tests of increasing complexity to demonstrate system performance and to provide data to anchor system models and simulations. As successful flight tests are conducted, data analysis is performed, and confidence gained through success, the remaining flight test matrix is reviewed to ensure the data requirements are still valid. There were three factors considered in reducing flight tests:

(1) Successes realized in the initial flight and ground tests has reduced risk for the balance of planned tests.
(2) Successes created an opportunity to realize cost savings to mitigate unfavorable cost variances without compromising data collection to anchor models and simulations.
(3) Reduced flight tests minimized cost and schedule risk given scarce range and target resources.

In summary, all the flight test objectives of the deleted three flights were reallocated to remaining flights and will be demonstrated in those future missions.

Ms. TAUSCHER. I understand that THAAD's performance could be enhanced/increased by adding a second-stage to the current interceptor. Have you done any modeling examining the contribution that an upgraded THAAD could make to the overall missile defense mission? Does MDA plan to put any money into exploring this option? If not, why?

General OBERING. The Terminal High Altitude Area Defense (THAAD) is an emerging capability for area defense. The Agency has conducted analysis of THAAD's performance with a second-stage booster to the current interceptor for several scenarios to include the defense of Europe against an Iranian threat and the defense of the DC area against a similar threat. Adding a second-stage to the THAAD interceptor is only one of many enhancements to THAAD that the Department is considering. The Department has not made a decision on increasing the robustness of the capability for regional defense. We are continuing to evaluate the efficacy of "growth THAAD" capability to the BMDS as part of the MDA 2007 Summer Study. THAAD shows great promise, and its capability needs to be examined further with regard to sensor and command and control networks to optimize the design to meet BMDS performance requirements.

Ms. TAUSCHER. Is the SM–3 Block 1B missile capable of protecting the Fylingdales radar from an intermediate range ballistic missile from Iran?

General OBERING. [The information referred to is classified and retained in the committee files.]

Ms. TAUSCHER. According to MDA budget materials, the ABL will no longer be described as part of the BMDS block structure organization, but as a capability investment designation. Why did MDA make this change? When does MDA expect to have a deployable ABL capability?

General OBERING. Beginning with our FY08 President's Budget request, MDA is not associating a program with a specific block if the estimated schedule for that program does not provide a missile defense capability until after the Block 2012 timeframe. Instead, these programs are considered to be capability investments that will address threat maturation, uncertainty and surprise beyond the current FYDP. This approach is a result of our continuing review of the BMDS block structure.

This approach is also responsive to GAO concerns. With respect to ABL, GAO has noted that while the Agency has been including resources for ABL in the budget breakdowns for various blocks, there were no plans for ABL to provide a missile defense capability within the timeframes for the blocks listed in the Agency's FY08 budget request. Removing ABL from the block structure resolves this disconnect and responds to the GAO's concern.

MDA expects that ABL will have a deployable capability no earlier than 2017. Pending successful completion of the lethal demonstration scheduled for 2009, the ABL Tail 1 test asset could be used to provide a limited defensive capability if needed.

Ms. TAUSCHER. General Obering, you have stated that there is effective oversight of the Missile Defense Agency, but that oversight is conducted at the "principal" not the staff level. How can there be effective oversight at the principal level if their staffs are not fully engaged in the process?

General OBERING. Remarks I have made on this point in various forums were never meant to convey that support staff is not fully engaged in these matters. My reference to involvement at the principal level was intended only to emphasize the direct involvement of senior leaders in the Department on missile defense issues. As a matter of routine, appropriate MDA staff is fully engaged with their counterparts in oversight offices such as AT&L, DOT&E and others. Furthermore, my staff is equally engaged with all the major stakeholders in the BMDS program including STRATCOM, the Combatant Commands, the Services. The contribution of staff is invaluable both to supporting oversight of MDA and ensuring effective development and fielding of missile defenses, and it was never my intention to suggest otherwise.

Ms. TAUSCHER. In 2002, former Secretary of Defense Rumsfeld exempted the Missile Defense Agency from the normal DOD requirements process. I understand that STRATCOM and MDA have developed a new program called the Warfighter Involvement Program (WIP) to ensure warfighter views are incorporated into the missile defense development process. What are the key elements of the Warfighter Involvement Program? To date, are you satisfied with the Warfighter Involvement Program? What happens if there's a disagreement between STRATCOM and MDA on an issue? How are differences resolved? Are there areas where the process could be improved?

General CAMPBELL. U.S. Strategic Command developed the Warfighter Involvement Process (WIP) to provide Warfighters an input mechanism to the Missile Defense Agency's (MDA) development process. The WIP is a collaborative forum between the Warfighters from the Combatant Commands to identify, analyze, and prioritize capability needs for global missile defense. The products of the WIP include the Prioritized Capabilities List (PCL), designed as a vision document for overall capabilities needed for a missile defense system, and the Modification Request List (MRL), designed as a document to express Warfighter desired modifications to fielded systems.

To date, two versions of the PCL and one version of the MRL have been published. In response, MDA has acted upon a number of capability needs, within current fiscal constraints, to address Warfighters' needs. MDA also plans to conduct detailed analysis this year to respond to the 2007 PCL, published earlier this year. The WIP process, and MDA's response to the Warfighter needs, is governed by the Ballistic Missile Defense (BMD) Management Structure. This body provides the corporate governance to address pressing issues between the stakeholders.

The process was established two years ago and has taken hold. The Warfighter and MDA are embracing the process and continue to make improvements. We are making progress in institutionalizing the WIP to address evolving challenges of developing and deploying the BMDS capability.

Ms. TAUSCHER. The Missile Defense Agency is first and foremost a research and development organization. However, over the past several years it has assumed a number of other missions because the military services have generally been reluctant to assume responsibility for procuring, fielding, and sustaining missile defense capabilities. General Campbell, in your view, is the Missile Defense Agency in its present form organized appropriately to provide effective support to the warfighter? Should we consider refocusing MDA's mission from research and development to combat support?

General CAMPBELL. The Missile Defense Agency (MDA) has assumed additional missions in recent years in response to Presidential direction to field an initial set of missile defense capabilities. The Agency has satisfied this requirement by fielding developmental assets and providing funding for their operation and sustainment.

The Warfighters and Services are working closely with MDA to provide the needed capability. MDA recently established the Warfighter Support Center at the Missile Defense Integration and Operations Center (MDIOC) in Colorado Springs, collocated with the Joint Functional Component Command for Integrated Missile Defense (JFCC–IMD). This new organization is already paying dividends with respect to the deployed BMDS' operation and sustainment. The Warfighter Support Center provides timely and effective support to the Warfighter.

As for combat support, MDA has been aggressively supporting the Warfighter mission areas by fielding new systems immediately through future upgrades and spiral development. MDA is providing an equitable balance between providing the initial support to transition capability to a Lead Service while continuing the research and development mission. There are no plans at this time to refocus MDA's mission from research and development to combat support.

Ms. TAUSCHER. In 2002, the Unified Command Plan (UCP) assigned the U.S. Strategic Command (STRATCOM) responsibility for planning, coordinating, and integrating global missile defense operations. That said, much has occurred since then. Given the lessons we have learned since 2002, do you anticipate any changes or revisions to the UCP with regard to missile defense? If so, what changes? Is it possible that STRATCOM could potentially be assigned execution authority?

General CAMPBELL. Over the past four years, U.S. Strategic Command (USSTRATCOM) has made great strides in taking global missile defense from vision to reality. Two key significant milestones are the standing up of the Joint Functional Component Command for Integrated Missile Defense (JFCC–IMD) as well as the fielding of a midcourse ballistic defense system capable of defeating North Korean intercontinental ballistic missiles threatening the United States. We have learned that global missile defense is much more than just ballistic missile defense and I envision a possible advocacy role for USSTRATCOM to develop desired capabilities and characteristics on behalf of all the Warfighters for cruise missile defense.

USSTRATCOM currently has execution responsibilities for aspects of ballistic missile defense such as operating critical sensor and command and control capabilities in support of geographic combatant commanders defending their area of responsibility. As the ballistic missile defense system architecture continues to expand, we will continue to assess how best to realize global missile defense and to provide support to regional combatant commanders.

Ms. TAUSCHER. Currently, all Aegis ships capable of conducting BMD operation are assigned to the Pacific and I understand that Commander 7th Fleet is reluctant to release any of these vessels to other theaters such as CENTCOM and EUCOM. At the same time, the United States and its friends and allies face a growing threat from Iranian short and medium range ballistic missiles. Is there currently a requirement to provide a permanent Aegis BMD engagement capability in the CENTCOM AOR? If Commander 7th Fleet is reluctant to release Aegis BMD engagement ships to other regions of the world, are there any plans upgrade additional Aegis ships to support CENTCOM and EUCOM?

General CAMPBELL. There is currently not a requirement to provide a permanent Aegis BMD engagement capability to the CENTCOM AOR, however, several Aegis BMD ships have deployed to CENTCOM recently through the normal rotation of forces assigned. When a requirement for BMD forces emerges in a particular theater, it will be articulated and evaluated through the existing request for forces process and a sourcing solution will be developed. Pacific Command, Pacific Fleet, and Seventh Fleet fully support this process and are aware of the potential for providing Aegis BMD capability outside the PACOM AOR.

It is important to note that Aegis BMD engagement capability is in the early stages of fielding, and although the Navy is aggressively making ship conversions and building missiles, we have a thin line of SM–3 capability for the near-term. The current development program includes 16 Pacific-based ships and two Atlantic-based ships by 2009. These ships are deployable world-wide; however, response time is situation dependent.

Ms. TAUSCHER. I understand that U.S. Strategic Command has recently completed a Capabilities Mix Study that examined the missile defense requirements of the combatant commanders. What did the Capabilities Mix Study have to say about COCOM requirements for SM–3 and THAAD? According to the study, do we have sufficient numbers of SM–3 and THAAD interceptors to meet current requirements?

General CAMPBELL. The Joint Capabilities Mix (JCM) Study is an iterative opportunity for the joint communities of interest (including COCOMs, Services and the Missile Defense Agency) to explore weapons and sensor mixes to counter the expected threats in three major theaters of operation in future epics. JCM I concluded in April 2006 and influenced MDA programmatic decisions to increase the number of THAAD Firing Units and interceptors, increase SM–3 interceptors, and start the Sea-Based Terminal program. JCM II has just concluded and results are being staffed and briefed through the Joint Requirement Overview Council (JROC) process. The findings provide an initial recommendation of the minimum number of upper-tier (THAAD and SM–3) interceptors needed for combat operations in 2015 for a near-simultaneous two MCO fight. Additional study will be required to further refine the analysis; however, results from this study indicate that for certain contingencies there is a need for more upper-tier interceptors than are currently programmed.

Ms. TAUSCHER. In September 2006, GMD conducted a successful end-to-end test for one engagement sequence resulting in an intercept. Independent test agencies report that while this test was important it is not sufficient to provide high confidence in the models and simulations that predict BMDS performance. In addition,

Operational Test Agency officials suggested that the WILMA model currently used to predict BMDS performance does not have sufficient fidelity for BMDS performance analysis. The Missile Defense Agency is currently developing a replacement for the WILMA model. In the opinion of the Office of the Director, Operational Test and Evaluation, how many GMD tests are needed to have high confidence that GMD can intercept intercontinental ballistic missiles? When will the development and testing of the replacement for the WILMA model be completed? Until the new model is developed, what confidence does the Missile Defense Agency have in its ability to predict the performance of the BMDS?

Mr. MCQUEARY. Fiscal constraints will likely make it impossible to achieve statistical confidence in the operational effectiveness and suitability of the BMDS. For example, to achieve 80% confidence that an element can perform its mission successfully 80% of the time (80/80), the element would have to complete 10 consecutive, successful flight tests using the same geometry, scenario, and hardware/software configuration. For higher confidence/success, the number of consecutive, successful tests is even higher: 90/80–13, 80/90–21, and 90/90–28. Therefore, assessing the operational effectiveness and suitability for each element is going to be a combination of flight tests and modeling and simulation. If I have validated models and simulations, the currently planned flight test programs for Aegis BMD and THAAD should be adequate for me to assess operational effectiveness and suitability for their current spiral development phases. This assumes no further reductions in their currently planned flight test programs. On the other hand, the current GMD flight test program has not yet completed the quantity of flight tests of the THAAD or Aegis BMD programs. It has had only one successful, operationally realistic demonstration of its ability to destroy a threat representative target. Many more flight tests are needed to demonstrate repeatability and to anchor the models and simulations.

General Obering is following a prudent "test-analyze-fix-test" approach which, when he finds problems, results in testing delays. For example, he delayed FTG–03 to May 2007 to fix software and add test equipment to the kill vehicle. At the same time, MDA must validate its models, a process directly related to flight testing. As a result, at this time it is impossible for me to estimate the number of successful flight tests I will need to assess GMD operational effectiveness and suitability.

The WILMA model replacement is one, but not the only, BMDS-level model needed for BMDS performance assessments. For the BMDS, there are BMDS-level models and there are element-level models. I need both, correctly and efficiently working together, to accurately assess capability. Generally, the element-level models are more mature, have detailed validation plans, and are progressing toward validation through ground and flight testing. The BMDS-level models are not ready for use in my assessments, but are scheduled to be ready to assess the FTG–04 pre- and post-test events and the Block 06 BMDS in the fall of 2007. I am working with MDA to understand the details and the timelines associated with development, integration, and validation of the BMDS-level models. The only way MDA can validate that these models accurately predict BMDS performance is to "anchor" them to flight test data, and we are working together to achieve this goal.

Ms. TAUSCHER. The committee has been informed that the Missile Defense Agency plans to reduce the total number of THAAD flight tests by three. What are the risks associated with reducing the number of THAAD tests? Does DOT&E agree with the decision to reduce the number of flight tests?

Mr. MCQUEARY. Following the completion of the Demonstration/Validation phase in 1998, the THAAD program developed a set of critical factors (such as intercept altitude and radar detection range) that should be tested at stressing values to validate system performance throughout the battlespace. THAAD's new flight test program will examine as many critical factors as possible. The number of critical factors stressed during testing has remained about the same. However, the number of times any critical factor is stressed during flight testing has been reduced by about a third. Validation of models and simulations should still be possible with the reduced number of flights, but, because of the large number of critical factors tested in relatively few flight tests, any single test failure would now jeopardize model validation.

Target availability issues would have caused significant problems for the THAAD program without a flight test program redesign. DOT&E supports the decision to reduce the number of flight tests, but cautions that any flight test failure will likely require the program to add further testing.

Ms. TAUSCHER. The committee has been told that one of the key elements limiting the current missile defense test program is the lack of infrastructure. What specific actions can be taken to improve MDA's testing infrastructure?

Mr. MCQUEARY. There are two infrastructure issues that limit the current missile defense test program: availability of targets and implementation of Concurrent Test, Training, and Operations (CTTO). First, target availability and reliability is affecting flight test program schedules. For example, MDA was forced to change the THAAD flight test program recently because of target issues. MDA is reengineering its target program to resolve the reliability issues with the current targets, and increase emphasis on the timely development and procurement of targets and spares to support all BMDS test programs. Additionally, the Flexible Target Family Program which consolidates management, design, and production of ballistic missile targets utilizing retired Navy Trident C–4 boosters, will increase reliability, performance and throughput. Second, MDA and the warfighters are not able to concurrently test, train, and operate the Ballistic Missile Defense System (BMDS), a procedure known as CTTO. Because the ability to conduct concurrent testing and operations is limited, the cost in resources and schedule is significant when testing must be delayed while portions of the BMDS are "on alert". Training on the system is limited by peacetime and safety constraints. MDA has funded its plan to establish the BMDS architecture necessary to achieve CTTO.

Ms. TAUSCHER. The U.S. and Israel have a long and deep cooperation in missile defense. Can you provide us an update on current U.S.-Israeli Cooperation? Are there impediments standing in the way of increased cooperation?

Secretary GREEN. U.S.-Israeli missile defense cooperation has been extensive. In the past, Israel has acquired PATRIOT systems, and we have cooperated to develop the Arrow Weapon System (AWS). We continue to work together on the Arrow System Improvement Program to enhance the AWS operational capabilities. U.S. companies are also co-producing Arrow components under the Arrow Enhanced Component Production Process. We are also negotiating with Israel on David's Sling, a new cooperative development program to counter short-range ballistic missiles. We are not aware of any impediments to increased cooperation. While, current laws and regulations require all technology transfers to be scrutinized on a case-by-case basis, such a review is consistent with U.S. national security interests.

Ms. TAUSCHER. In the FY08 budget request, MDA announced that it plans to replace the unitary warhead on the SM–3 Block IIA missile—which the United States is co-developing with Japan—with the multiple kill vehicle (MKV). To what extent did the Department of Defense consult with Japan before it made the decision to replace the unitary warhead on the SM–3 Block IIA missile with the MKV? What has been the Japanese response to the U.S. decision?

Secretary GREEN. The FY 2008 President's Budget Request reflects the co-development with Japan of the SM–3 Block IIA with a unitary warhead. The Department has not made the decision to change the Block IIA payload to a multiple kill vehicle (MKV). The U.S. has raised the subject with Japan within the context of addressing more complex threats and has asked the Japanese to participate in a joint analysis to determine the efficacy of the MKV on the Block IIA. The Japanese are evaluating whether and how to participate in the joint analysis.

Ms. TAUSCHER. Until recently, there had been strong public support in Poland and the Czech Republic for deploying U.S. missile defense capabilities on their respective territories. However, over the past several months, public support for the potential deployment has begun to decrease. What have been the key reasons contributing to the change in public opinion in Poland or the Czech Republic? What impact will this have on our decision to move forward?

Secretary GREEN. While I do not want to speculate on what factors may be contributing to public opinion in Poland and the Czech Republic on this issue, it is clear that the host governments are beginning to conduct public awareness campaigns to enable their citizens to gain a better understanding of U.S. plans to base missile defenses in their countries. We are complementing these efforts by engaging the wider European community on our missile defense plans to communicate how our efforts contribute to overall regional security.

The host nation governments continue to support U.S. missile defense basing plans. We are moving forward with plans to complete negotiations on basing and security agreements later this year. These negotiated agreements ultimately must be approved by the parliaments of each country, and the U.S. remains attentive to the level of public and parliamentary support.

Ms. TAUSCHER. In testimony before the committee, you stated: "NATO as an alliance develops very few of its own capabilities. Most of its capabilities are actually developed by individual nations or smaller groupings with NATO that develop a particular capabilities, and then offer those capabilities in the context the NATO alliance." While that is true, don't nations usually offer those capabilities in the context of an overarching NATO requirement? Is there currently a NATO requirement for protection of Alliance territory and population centers?

Secretary GREEN. NATO member countries develop and field capabilities to meet a wide range of national security objectives. These capabilities are integrated into NATO forces through a force planning process. Most NATO capabilities are built up in this manner. However, should a capability gap or new mission area be identified, NATO planners may ask members to fill the gap. NATO itself develops very few of its own capabilities, Active Layered Theater Ballistic Missile Defense (ALTBMD) being one example.

NATO completed a study in 2006 on the feasibility of a NATO defense for European population and territory from long range missile attack. This study concluded that such a defense is feasible. As a result of the 2006 feasibility study, NATO is currently assessing the political and military implications of such a defense. It recently modified this effort to account for the deployment of U.S. missile defense assets in Europe.

QUESTIONS SUBMITTED BY MR. EVERETT

Mr. EVERETT. Please address technology risk reduction activities for MDA's two boost phase defense programs—ABL and KEI. What are each programs critical technologies, what specific actions have been (and will be) taken to mature technologies and retire risk, and what criteria will be used to evaluate and then down select from among the two boost phase programs?

General OBERING. ABL and KEI are important development efforts that leverage technological progress to provide capability options to address future threats. To minimize technology risks in development, these elements of the Ballistic Missile Defense System must achieve specific knowledge points unique to that technology before proceeding to the next acquisition phase. These planned events contribute essential knowledge about the technical feasibility of these approaches; knowledge that is required to make an informed decision.

ABL is on track to conduct a lethal shootdown of a ballistic missile target in 2009. The critical risks to be retired in order to develop an operational capability and relevant mitigation efforts underway are:

- Flight test of beam control and atmospheric compensation lasers against a cooperative airborne target. This risk will be mitigated by flight testing scheduled to complete the summer of 2007. Once the high energy laser is installed on the aircraft, ground and flight testing will continue in 2009.
- Integration of high energy laser modules with the modified Boeing 747 aircraft in preparation of a lethal shoot-down of a ballistic missile target. This risk will be mitigated by integration and test activities performed in the System Integration Laboratory (SIL), a 747–200 fuselage.
- Reliability of optical system performance, including compensation for atmospheric effects, aircraft induced optical jitter, and ensuring high beam quality in an operational environment. This risk will be mitigated by hardware and software efforts to reduce optical jitter and improve beam control performance.

The KEI development effort has been restructured to focus on high-acceleration booster component development and test. The critical risks to be retired are:

- Integrating high-energy propellants associated with smaller tactical missiles into the larger configuration needed to achieve high performance, high maneuverability requirements.
- Demonstration of an integrated high-performance trapped-ball thrust vector control system that increases mission flexibility.

In 2006, MDA conducted wind tunnel and other risk reduction tests to determine KEI performance and assess trapped-ball thrust vector control of the first and second stage. Maturation of these technologies will continue with booster static fire tests throughout 2007–2008. In 2008, a prototype 2-stage booster flight test will be conducted to demonstrate technology readiness in a flight environment.

The Airborne Laser is on track to conduct a lethal shoot down of a ballistic missile target in 2009 and the Kinetic Energy Interceptor is on track to conduct a flight test of its high acceleration booster in 2008. Each test contributes essential knowledge about the technical feasibility of these approaches; knowledge that is required to make an informed decision.

Mr. EVERETT. Please address technology risk reduction activities for MDA's two boost phase defense programs—ABL and KEI. What are each programs critical technologies, what specific actions have been (and will be) taken to mature technologies and retire risk, and what criteria will be used to evaluate and then down select from among the two boost phase programs?

General CAMPBELL. The Airborne Laser (ABL) and Kinetic Energy Interceptor (KEI) programs are important development efforts that leverage technological progress to provide capability against future threats. To minimize technology risks in development, these programs must achieve specific knowledge points before proceeding to the next acquisition phase. These knowledge points contribute essential information about the technical feasibility of these approaches.

The ABL program is on track to conduct a lethal shootdown of a ballistic missile target in 2009. The critical risks to be retired and ongoing mitigation efforts to develop an operational capability are:

- Flight testing of the beam control system to include the ability to compensate for atmospheric effects. This risk will be mitigated by ongoing flight testing scheduled to be completed by this summer. Once the high energy laser is installed on the aircraft, ground and flight testing will continue through 2009.
- Integration of high energy laser modules in the modified 747—mitigated by integration and test activities performed in the System Integration Laboratory (SIL), a 747–200 fuselage.
- Reliability of optical system performance in an operational environment—mitigated by hardware and software efforts to reduce optical jitter and improve beam control performance.

The KEI program has been restructured to focus on high-acceleration booster component development and testing to defer investments in weapon element development until after the critical knowledge points are achieved. The critical risk to be retired is the integration of high-energy propellants associated with smaller tactical missiles into the larger configuration needed to achieve the high performance and high maneuverability for intercept of intercontinental ballistic missile threats. In 2006, the KEI program conducted wind tunnel and other risk reduction tests to determine energetic performance and assess thrust vector control operation of the first and second stage. Maturation of these technologies will continue with booster static fire tests throughout 2007 and 2008. In 2008, a prototype 2-stage booster flight test will continue this maturation and risk reduction in a flight environment.

A boost phase decision will be made after the ABL and KEI programs complete their respective knowledge points. In my discussions with Missile Defense Agency, I understand that either ABL or KEI will be selected as the primary Ballistic Missile Defense boost phase program element before 2010.

Mr. EVERETT. The Missile Defense Agency is developing the Space Tracking and Surveillance System (STSS), formerly known as SBIRS-Low, and has other activities ongoing in the space arena. How are your offices involved in coordinating MDA's space programs with the rest of the Department?

General OBERING. MDA incorporates existing Department space assets, like DSP/SBIRS, into both the current operational BMDS, and future architecture decisions. The STSS will rely on cues from DSP/SBIRS.

- MDA involves the Department in development activities to leverage expertise, such as the Air Force Research Lab's work on the NFIRE sensor payload.
- MDA's STSS office is located at US Air Force's Space and Missile Center in Los Angeles to facilitate working level coordination with USAF space development activities.
- MDA has established a Space Experimentation Center in Colorado Springs from which to operate MDA space assets, and to leverage data from Department space programs.
- MDA conducts regular high level Boards of Directors meetings with the Services to maintain mutual awareness of developmental and operational status—the DoD Executive Agent for Space participates in this process.
- MDA has established a Transition and Transfer process to plan for Service operation of BMDS Elements, including STSS.
- Air Force Space Command (AFSPC) has been designated the lead Service component for STSS, and is incorporating STSS into their infrared satellite architecture.
  - An Integrated Concept Team has been established to ensure AFSPC understanding of STSS capabilities, thereby allowing for a smoother transition once AFSPC assumes operational control of STSS.
  - AFSPC is using this information to budget for AFSPC support and manpower.
  - MDA is working with AFSPC to ensure suitable Operational Testing, and to ensure AFSPC understanding of STSS capabilities.

Mr. EVERETT. Additionally, please describe how MDA's sensors could contribute to providing space situational awareness?

General OBERING.

- Based on studies and sensor performance in ground tests, BMDS Block 2006 is expected to be able to make contributions to space situational awareness (SSA),

though it will not be able to fully meet AFSPC requirements, or be a substitute or replacement for the planned Space Based Space Surveillance system (SBSS).

- ○ Data collection for SSA is simpler than for BMDS operations, as the orbits of space objects are generally much more stable than the track of a ballistic missile through space.
- ○ BMDS Block 2006 likely to be able to make 10's of observations per day, on a non-interference basis with BMDS tasking.
- ○ BMDS Block 2006 well suited to collecting information on many objects in low, medium, geosynchronous and highly elliptical orbits.

- MDA also has three X-Band radars (AN/TPY–2, SBX, European Midcourse Radar) that could contribute to space situational awareness.
  - ○ These radars are capable of providing track data on objects in Geosynchronous Transfer Orbit (GTO) and Lower Earth Orbit (LEO).
  - ○ The radars do not currently have the necessary software to actively contribute to space situational awareness.
  - ○ The planned upgrade to the European Midcourse Radar includes the capability to perform the space situational awareness mission.
  - ○ This software functionality may be retrofitted on the AN/TPY–2 and SBX radars as a future capability.

QUESTIONS SUBMITTED BY MR. FRANKS

Mr. FRANKS. Will the system proposed for deployment in Poland and the Czech Republic be interoperable with NATO systems to include indigenous capabilities? What is MDA doing to ensure interoperability?

General OBERING. The MDA has been working with NATO for over a decade to develop strategies and standards to make interoperability between the NATO command and control (C2) systems and the US command, control, battle management, and communications (C2BMC) system feasible. As the gateways to the weapon systems and sensor systems, the interoperability between the NATO C2 systems and the C2BMC is essential. Since the C2BMC will be a critical element of the deployment in Poland and the Czech Republic, the cooperative work accomplished between the United States and NATO such as agreement on Link-16 messages, joint range extension protocol, and commonality of C2 architecture provides the foundation for interoperability.

To ensure interoperability, the MDA has worked with the US Defense Information Systems Agency (DISA) and with NATO counterparts to formalize agreements into Military Standards (US) and Standardization Agreement (STANAG–NATO). In addition, the MDA has performed experiments with elements of NATO's C2 systems and plans to expand the types and functionality of experiments.

Mr. FRANKS. Will the system proposed for deployment in Poland and the Czech Republic be interoperable with NATO systems to include indigenous capabilities? What is MDA doing to ensure interoperability?

General CAMPBELL. The components of the Ballistic Missile Defense System to be deployed in Poland and the Czech Republic will complement other NATO defense systems and are consistent with the overall direction NATO is taking on missile defense.

As envisioned, the European components will enhance NATO security by providing many NATO allies with defensive coverage against a growing threat and by addressing a capability gap within the NATO system. NATO's current missile defense programs, and the future Active Layered Theater Ballistic Missile Defense (ALTBMD), focus on short and medium-range threats while the focus of the new European component would be on long-range missiles fired from the Middle East.

The Missile Defense Agency (MDA) has been working with NATO for more than 10 years on interoperability between NATO command and control systems and U.S. systems, and fully intends to ensure interoperability of the BMDS European component.

The U.S. is already engaged with key Allies in coalition operations involving theater missile defense assets. As the Ballistic Missile Defense System is deployed in Europe, MDA will ensure the requisite technology is readily available to integrate with Allies to provide layered missile defense capability. Enhancements to the current technical solutions are being examined and demonstrated by MDA and NATO to increase interoperability opportunities. Together, the systems will provide a significant amount of opportunity for increased pre-crisis planning, shared situational awareness, and information sharing. The Joint Functional Component Command for

Integrated Missile Defense (JFCC–IMD) is actively working with the Allies to develop concepts and procedures for coalition operations for global missile defense.

Mr. FRANKS. What proportion of United States weapons systems or other actions whose mission is to defend the United States homeland go through the full NATO body, and therefore invite veto by one of the 26 NATO countries? How many bi-lateral agreements does the United States have in place with European nations that are part of NATO? How many bi-lateral agreements for defense related assets does the United States have world-wide?

Secretary GREEN. The Department of Defense knows of no U.S. systems for homeland defense or other actions related to the defense of the U.S. homeland that are subject to NATO approval, including the deployment and employment of U.S. strategic deterrent forces. Each member country determines its own force structure capabilities and levels necessary to meet its national security objectives. NATO countries may enter into bilateral or multilateral agreements to develop capabilities that can be deployed under NATO sanctioned missions, but these cooperative developments are not subject to NATO approval.

The U.S. has concluded a number of bilateral agreements with NATO Allies and other countries worldwide. These agreements encompass the full range of operational, logistical, and materiel matters, and they support a number of U.S. strategic objectives, including the conduct of military operations, building foreign capacity, and maintaining our global force posture.

In the area of missile defense, the U.S. has separate bilateral agreements with the U.K. and Denmark to use sensors based in their countries in support of the strategic missile defense mission to defend U.S. territory. We have a bilateral agreement with Canada concerning the joint operation of the North American Aerospace Defense Command. We have an agreement with Japan to co-develop a larger, more capable version of the current sea-based midcourse interceptor that could provide defense of portions of the U.S. homeland under certain scenarios. The U.S. has several bilateral agreements with Israel including cooperative developments of the Arrow Weapon System to include co-production, Israeli Test Bed, David's Sling Weapon System and other Data Exchange Agreements on missile defense.

Mr. FRANKS. (1) What systems designed to intercept a ballistic missile in boost phase are proving to be the most successful? (2) When is KEI scheduled to have a full intercept test? (3) What would the mission of ABL actually look like?

General OBERING. (1) The Airborne Laser (ABL) and Kinetic Energy Interceptors (KEI) Elements of the Ballistic Missile Defense System (BMDS) are important boost phase development efforts that leverage technological progress to provide capability options to address future threats. Both Elements have specific knowledge points that must be achieved in order to demonstrate desired capability.

ABL and KEI are both on track to meet their critical knowledge points: KEI is scheduled to flight test a prototype 2-stage booster in FY 2008; ABL is scheduled to conduct a lethal shoot-down of a ballistic missile target in 2009. Over the past two years, both Elements have made excellent progress in successfully achieving intermediate development milestones. Each successive capability demonstration contributes essential knowledge about the technical feasibility of these development efforts; knowledge that is required to make an informed decision.

Specific examples of ABL's continuing success are: the demonstration of High Energy Laser operation on the ground; and the successful tracking of an airborne target from the ABL aircraft in flight.

Specific examples of KEI's continuing success are: the ground test demonstrations of booster energetic performance; and demonstrated trapped ball thrust vector control capability for both first and second stages that increases mission flexibility.

(2) Decisions about future flight tests, to include a full intercept test for KEI, will be made based on knowledge gained from booster program progress up to the scheduled knowledge points in FY 2008 and 2009.

(3) Based on the Air Force Air Combat Command Concept of Operations signed in March 2007, ABL will deploy from a Main Operating Base in the CONUS to a Forward Operating Location (FOL). The ABL will deploy with all equipment and sustainment supplies necessary for combat operations. ABL aircraft missions will depart from the FOL to the threat region of interest and position in a Combat Air Patrol (CAP) flight path. The CAP flight path is determined by an assigned area of interest, enemy threats, and other specific mission objectives. ABL CAP mission paths are dynamic in nature and may be repositioned based on intelligence updates and a changing battlespace. ABL will fly one CAP, nominally 6 hours, refuel in-flight, and then fly a second CAP before returning to the FOL. During these CAPs, ABL will engage enemy missiles per Rules of Engagement that are defined during mission planning.

Mr. FRANKS. In 1998, a matter of weeks before the North Korean missile launch, the Commission to Assess the Ballistic Missile Threat to the United States warned both of unexpected rogue state missile development, and of the threat of a ship launched missile. A freighter could bring a SCUD or Shahab to 300 miles of a U.S. coast. In the fall of 2001, former Defense Secretary Donald Rumsfeld noted how a rogue state had already tested a missile from a ship. What missile defense capabilities and systems (e.g., THAAD, SM–3, PAC–3, etc.) would be best suited to defend all 50 states from such an attack?

General OBERING. Terminal High-Altitude Area Defense (THAAD), Aegis Ballistic Missile Defense (BMD) Standard Missile (SM)–3 and Patriot Advanced Capability (PAC)–3 each provide a capability to defend against a SCUD or Shahab launched 300 miles from the coastline of the United States. An integrated surveillance network of coastal based AN/TPY–2 class radars cued by overhead sensors would provide these weapon systems the tracking data needed to execute intercepts. Further analysis and requirement definition is needed to determine the best mix of sensors and interceptor systems needed to defend all 50 states from a ballistic missile launched within 300 miles of the U.

Mr. FRANKS. In 1998, a matter of weeks before the North Korean missile launch, the Commission to Assess the Ballistic Missile Threat to the United States warned both of unexpected rogue state missile development, and of the threat of a ship launched missile. A freighter could bring a SCUD or Shahab to 300 miles of a U.S. coast. In the fall of 2001, former Defense Secretary Donald Rumsfeld noted how a rogue state had already tested a missile from a ship. What missile defense capabilities and systems (e.g., THAAD, SM–3, PAC–3, etc.) would be best suited to defend all 50 states from such an attack?

General CAMPBELL and Mr. MCQUEARY. There have been a number of studies conducted on this issue, including technology efforts from the Missile Defense Agency (MDA) and Warfighter efforts from the U.S. Northern Command. A common theme from these studies is the need for an effective indication and warning capability to provide the necessary lead time to employ the requisite means against the potential threat. The existing and programmed missile defense program elements (e.g. Aegis Standard Missile-3, Terminal High Altitude Area Defense, and PATRIOT) provide a diversity of missile defense capabilities against all ranges of threat (e.g. short- to long-range ballistic missiles). However, most of the missile defense systems against shorter range threats have limited defended areas, that range from city-block to metropolitan areas; hence, the requisite number of elements to defend all 50 states quickly outpaces the existing and planned inventory. Toward that end, the Department is exploring innovative methods to protect larger areas with fewer missile defense systems. Examples include an effective command and control architecture that employs a diverse sensor networks and interceptors which have large kinematic ranges.

Mr. FRANKS. What configuration of space-based interceptors would be necessary to fulfill the United States policy, passed overwhelmingly by the United States Congress and signed by President Clinton in 1999, to defend against limited attacks, whether "accidental, unauthorized, or deliberate," originating from Russia or China? What work is being done now to provide defense against such attacks, whether accidental, unauthorized, or deliberate?

Secretary GREEN. The U.S. missile defense program is not directed at either Russia or China. To address your question about space-based defenses, the Administration requested $10 million for FY 2008 to begin concept analysis and preparation for small-scale space-based experiments. These experiments will provide real data to answer a number of technical questions and help a future Administration make a more informed decision on whether or not to develop this capability. This approach is consistent with Presidential direction, including the National Space Policy and the National Policy on Ballistic Missile Defense.

○