

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR FISCAL YEAR 2016

WEDNESDAY, MARCH 18, 2015

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:32 a.m. in room SD-192, Dirksen Senate Office Building, Hon. Thad Cochran (chairman) presiding.

Present: Senators Cochran, Shelby, Murkowski, Blunt, Moran, Durbin, Reed, and Schatz.

DEPARTMENT OF DEFENSE

MISSILE DEFENSE AGENCY

STATEMENT OF VICE ADMIRAL JAMES D. SYRING, UNITED STATES NAVY, DIRECTOR

OPENING STATEMENT OF SENATOR THAD COCHRAN

Senator COCHRAN. Good morning. We welcome everyone to a meeting of our Subcommittee on Defense Appropriations where we are reviewing the fiscal year budget request of the administration for the Missile Defense Agency (MDA).

We are very pleased to welcome our distinguished witness, Admiral James Syring, who is Director of the Missile Defense Agency, a very important responsibility, and we appreciate your distinguished service.

The President has submitted a request for \$8.1 billion for the Missile Defense Agency, which is an increase of 3 percent over last year's enacted level.

The statement that has been submitted to the committee will be printed in the hearing record.

PREPARED STATEMENT

In addition, the budget proposes improvements and upgrades to the ground-based midcourse defense system and regional defense capabilities.

The request exceeds the defense spending caps mandated by the 2011 Budget Control Act by more than \$37 billion. We look forward, however, to working with our distinguished witness and others to develop a bill that will provide funding in fiscal year 2016 that will enable the Missile Defense Agency to successfully carry out its responsibilities.

[The statement follows:]

PREPARED STATEMENT OF SENATOR THAD COCHRAN

Good morning, the Subcommittee will come to order. Our hearing today will review the fiscal year 2016 budget request of the Missile Defense Agency. We are pleased to welcome Vice Admiral James Syring, the Director of the Missile Defense Agency.

For fiscal year 2016, the President's budget requests \$8.1 billion for the Missile Defense Agency, an increase of 3 percent over last year's enacted level. This proposal recommends funds for homeland and regional defense priorities, including fielding 44 operational Ground-Based Interceptors by 2017, and two international Aegis Ashore sites by the ends of 2015 and 2018, respectively. In addition, the budget invests in needed reliability improvements and upgrades to the Ground-Based Midcourse Defense System and regional defense capabilities.

The President's fiscal year 2016 budget request exceeds the defense spending caps mandated by the 2011 Budget Control Act by more than \$37 billion. If sequestration is triggered in fiscal year 2016, the Missile Defense Agency's budget would be reduced by roughly \$1.4 billion across each individual program and project. The Subcommittee welcomes your thoughts on the effects sequestration would have on the Missile Defense Agency's goals and programs, and we look forward to working with you to develop a fiscal year 2016 appropriations bill that will enable the Missile Defense Agency to successfully defend our homeland and regional interests in a fiscally responsible manner.

Finally, I am proud of the role your agency and this committee have played in protecting our security interests worldwide. This includes investments like the Iron Dome and other systems in Israel, which deter, and in some cases, have successfully intercepted regional missile and rocket threats.

Thank you for your testimony this morning. Your full statement will be included in the record.

Now I turn to the Vice Chairman, Senator Durbin, for his opening remarks.

Thank you.

Senator COCHRAN. I now am pleased to turn to our distinguished vice chairman, Senator Durbin, for any opening remarks he would like to make.

STATEMENT OF SENATOR RICHARD J. DURBIN

Senator DURBIN. Thanks, Chairman Cochran.

And, Admiral Syring, thank you for being here to discuss the 2016 budget request for the Missile Defense Agency. You have been given an awesome responsibility to defend the United States of America and our troops and allies from missile attacks and to do it in a fiscally responsible way.

Last year was a very important year for your undertaking. In June, the Missile Defense Agency had a major test success after two failures in 2010. I do not need to tell you because we made it a matter of record that there was a lot hanging on the success of that test. Had it not turned out as well as it did, we might be having a much different hearing today.

Substantial progress has been made in establishing the Aegis offshore site in Romania, to be followed by another in Poland beginning next year.

And for the record, this subcommittee, on a bipartisan basis, dramatically increased the funds for the Iron Dome missile protection system for Israel by \$225 million in emergency funds and \$175 million in base funds last year at a moment when Israel needed it the most, facing rocket attacks from Gaza.

However, there have been some fiscal challenges in 2016. The President's budget request for defense is \$38 billion over the Budget Control Act caps, and we read every day about the ongoing bat-

tle between the defense hawks and those who are deficit hawks. Your budget request is \$8.1 billion. Sequestration undoubtedly would hit you, and you are going to explain to us how, I am sure. I hope to hear from you regarding these developments.

PREPARED STATEMENT

We also need to ensure the Missile Defense Agency continues to pay attention to a lot of problems that have been with your agency for a long time, namely fielding equipment before it was adequately flight tested. GAO (Government Accountability Office) continues to have concerns there is too much concurrency in MDA acquisition, particularly regarding the procurement of ground-based interceptors (GBIs) and SM-3 missiles. Admiral Syring, you have endorsed the concept of “fly before you buy” in the past, and we want to make sure we are still meeting that standard, additionally, concerns about MDA’s testing regime and the operational rigor that is applied. We look forward to hearing your thoughts and testimony.

I apologize in advance if I skip out. I have another hearing in Judiciary going on at this same moment. I am trying to balance both.

But thank you for being here.

[The statement follows:]

PREPARED STATEMENT OF SENATOR RICHARD J. DURBIN

Mr. Chairman, I am pleased to join you in welcoming Admiral Syring to our hearing on the fiscal year 2016 budget request for the Missile Defense Agency (MDA).

Admiral, you have an important mission: to defend the United States and our troops and allies abroad from missile attacks, and to do so in as fiscally responsible a manner as possible. It is both technologically and fiscally challenging.

Last year was a very significant year for the Missile Defense Agency. In June, MDA had a major test success after two failures in 2010. There was substantial progress in establishing the Aegis Ashore site in Romania, to be followed by another in Poland beginning next year. Finally, funding for Iron Dome was increased by \$225 million in emergency funds, and \$175 million in base funds, to counter the rocket attacks on Israel from Gaza.

However, MDA has fiscal challenges in 2016. The President’s budget request for defense is \$38 billion over the Budget Control Act caps. Your budget request is \$8.1 billion, sequestration would undoubtedly have an impact. I hope to hear from you regarding both of these developments—what the successful test means for MDA’s progress, and what effects sequestration might have on the agency’s efforts moving forward.

We also need to ensure that MDA continues to pay attention to the problems that have plagued it in the past, namely fielding equipment before it was adequately flight tested. The Government Accountability Office continues to have concerns that there is too much concurrency in MDA acquisition programs, particularly regarding the procurement of Ground Based Interceptors and SM-3 missiles. Admiral Syring, you have endorsed the concept of “fly before you buy” in the past—are we meeting that standard now? Additionally, there are concerns that MDA’s testing regime lacks sufficient operational rigor—how is MDA doing in this regard?

Admiral, we look forward to hearing your thoughts on all of these issues. Thank you for your testimony this morning and for your service to our country.

Senator COCHRAN. Admiral, we welcome you to the committee and ask you to proceed with your statement.

SUMMARY STATEMENT OF VICE ADMIRAL JAMES D. SYRING

Admiral SYRING. Thank you, Mr. Chairman, Ranking Member Durbin, and distinguished members of the subcommittee, for the opportunity to testify today.

Our budget request for fiscal year 2016 continues the development of defenses for our Nation, deployed forces, allies, and international partners against spreading and increasingly capable ballistic missiles and supports the needs of the warfighter. Our plans maintain the commitment to operate and sustain homeland defenses, including the planned deployment of 40 GBIs (ground-based interceptors) to Fort Greely and 4 GBIs to Vandenberg for a total of 44 by the end of 2017.

The successful intercept test, sir, this past June demonstrated that we fixed the problem causing the vibrations in the inertial measurement unit of the CE-II EKV (Exoatmospheric Kill Vehicle).

Our budget request this year will support test requirements as we continue to enhance our stockpile reliability program and undertake component aging testing in order to understand and maintain the health of deployed systems. The testing plan for fiscal year 2016 includes a non-intercept flight test to evaluate the alternate divert thrusters and support algorithm development for discrimination improvements vital for homeland defense. In the following year, we will attempt to intercept an ICBM (intercontinental ballistic missile) target for the first time.

We will also continue development of the redesigned kill vehicle which I have testified before on the importance of that to the future of the fleet for improved reliability, availability, performance, and producibility. The first flight test of the RKV (Redesigned Kill Vehicle) is planned in 2018 with an intercept test in 2019 and initial deployment then in 2020.

To improve the overall performance of our homeland defenses, we completed technical trade studies and defined requirements for the Long-Range Discrimination Radar (LRDR) and started acquisition planning and preconstruction activities. We anticipate contract award for the development, deployment, and the initial operation of the LRDR before the end of fiscal year 2015. Our fiscal year 2016 budget continues the development and deployment against short-, medium-, and intermediate-range ballistic missiles. Phases II and III of the European Phased Adaptive Approach (EPAA) are on schedule, and we will expand the phase I protection of our European NATO (North Atlantic Treaty Organization) allies against attacks from the Middle East.

This plan includes the deployment of the SM-3 (Standard Missile 3) IBs and beginning in 2018 SM-3 Block IIAs on ships and at Aegis Ashore sites in Romania and Poland. We plan to procure 209 SM-3 IBs by the end of 2016 and will be requesting multiyear procurement authorization.

In support of the EPAA phase III, as you know, MDA is co-developing the SM-3 IIA missile with the Government of Japan and upgrading the Aegis BMD (Ballistic Missile Defense) weapons system to increase the defended area and the probability of defeating larger and more complex threats.

We also plan to deliver 48 additional THAAD (Terminal High-Altitude Area Defense) interceptors to the Army for a total of 155 delivered by 2016 to support the THAAD battery deployment based on warfighter demand and operational need.

Finally, our advanced technology, research, and development is critical if we are going to address gaps in the BMDS (Ballistic Missile Defense System). It is vital we continue to provide the warfighters the most advanced, cost-effective, and reliable weapons systems they need to do their jobs. In 2016, we will continue our discrimination sensor weapons technology common kill vehicle, which includes multi-object kill vehicles and technology maturation initiatives. These investments will help us to deploy a future BMDS architecture more capable of discriminating and killing re-entry vehicles with a high degree of confidence.

In the near term, our directed energy research is focused on missile defense applications at low power to provide a forward tracking capability. This low power research will build the foundation for achieving boost phase defense with higher power lasers in the next decade.

Mr. Chairman, this budget request balances investment in homeland and regional missile defense capabilities while pursuing advanced technology to pace the emerging threat. This year and next, we will continue expanding interceptor inventories, integrating new sensors, sensor upgrades, and technology into the architecture and deploying C2BMC (Command, Control, Battle Management and Communications) capabilities to the warfighter.

PREPARED STATEMENT

We have several critical development and operational flight tests coming up. In total, in fiscal year 2015, there are 12 tests in total.

MDA will continue to aggressively pursue cost reduction measures through competition, partnering, and cooperation as we deliver the best missile defense capabilities to protect our Nation, our deployed forces, our friends and allies at the lowest cost to the American taxpayer.

Thank you, and I look forward to your questions.

[The statement follows:]

PREPARED STATEMENT OF VICE ADMIRAL JAMES D. SYRING

Good morning, Chairman Cochran, Ranking Member Durbin, distinguished Members of the subcommittee. I appreciate this opportunity to testify before you today. Our current budget request of \$8.127 billion for fiscal year 2016 will continue the development of defenses for our Nation, deployed forces, allies, and international partners against increasingly capable ballistic missiles. The fiscal year 2016 missile defense program will continue to support the warfighter and needs of the Combatant Commands (COCOMs) with the development and deployment of interceptors, sensors, and the command, control, battle management and communications (C2BMC) system for the integrated Ballistic Missile Defense System (BMDS). Our request for fiscal year 2016 will improve and expand homeland and regional missile defenses and invest in advanced technology development and future capabilities to counter the increasingly complex threat.

BALLISTIC MISSILE THREAT

The threat continues to grow as our potential adversaries acquire a greater number of ballistic missiles, increasing their range, incorporating BMD countermeasures, and making them more complex, survivable, reliable, and accurate. Space-launch activities involve multistage systems that further the development of technologies for intercontinental ballistic missiles (ICBMs). In addition to the Taepo Dong 2 space launch vehicle/ICBM, North Korea is developing and has paraded the KN08 road-mobile ICBM and an intermediate-range ballistic missile (IRBM) capable of reaching Guam and the Aleutian Islands. As part of a series of provocations last year, North Korea conducted multiple short- and medium-range ballistic missile

launches and threatened to conduct additional longer-range launches. Today it fields hundreds of Scud and No Dong missiles that can reach U.S. forces forward deployed to the Republic of Korea and Japan.

Iran has publicly stated it intends to launch a space launch vehicle as early as this year (2015) that could be capable of intercontinental ballistic missile ranges if configured as such. Iran also has steadily increased its ballistic missile force, deploying next-generation short- and medium-range ballistic missiles (SRBMs and MRBMs) with increasing accuracy and new submunition payloads. Tehran's overall defense strategy relies on a substantial inventory of theater ballistic missiles capable of striking targets in southeastern Europe. Iran continues to develop more sophisticated missiles and improve the range and accuracy of current missile systems, and it has publicly demonstrated the ability to launch simultaneous salvos of multiple rockets and missiles. Demonstrating it is capable of modifying currently deployed ballistic missile systems, Iran has flight-tested a Fateh-110 ballistic missile in an anti-ship role. By adding a seeker to improve the missile's accuracy against sea-based targets, Iran could threaten maritime activity throughout the Persian Gulf and Strait of Hormuz.

SUPPORT FOR THE WARFIGHTER

Our overriding goal is to support the warfighter, which includes delivering greater missile defense capability and capacity. With this budget we will maintain our commitment to build out homeland defenses to 44 Ground Based Interceptors (GBIs) by the end of 2017. We also will maintain our commitment to deploy Phases 2 and 3 of the European Phased Adaptive Approach (EPAA) on schedule, which will include the deployment of Standard Missile-3 (SM-3) Block IB missiles and SM-3 Block IIAs (first available in 2018) on ships and at Aegis Ashore sites in Romania (2015) and Poland (2018). We currently have 33 Aegis BMD ships, on the way to 35 by the end of fiscal year 2016. We are continuing efforts to improve the performance of the Aegis Weapons System and plan to procure a total of 209 SM-3 Block IBs by the end of fiscal year 2016. We announced a Technical Capability Declaration this past December for the second forward-based X-band AN/TPY-2 radar in Japan, which improves homeland and regional defense capabilities and increases our global operational AN/TPY-2 radar posture. By the end of fiscal year 2016, MDA is scheduled to deliver 48 additional Terminal High Altitude Area Defense (THAAD) interceptors, for a total of 155 interceptors fielded, and we are continuing our support of the operational Guam THAAD battery.

Last year we conducted or participated in several multi-event exercises and wargames, which are critically important to the warfighter and the intensive engineering efforts across the Agency. In response to the continued fielding by U.S. adversaries of air, missile, and rocket capabilities, as Technical Authority for Integrated Air and Missile Defense (IAMD), MDA is leading the integration of evolving MDA, Service, and COCOM command and control capabilities through systems engineering analysis and development of technical integration requirements and interface control documents. Other IAMD initiatives include integrating C2BMC with the Army's Integrated Battlefield Control System (IBCS) to exchange ballistic missile data and exploring THAAD integration within the IBCS Army architecture.

We continue to work closely with the Director, Operational Test & Evaluation (DOT&E), independent testers, and the Services to develop an Integrated Master Test Plan (IMTP) to execute a robust, cost-effective flight test program that features operationally realistic conditions and integrates U.S. Government stakeholders—to include Soldiers, Sailors, Airmen, and Marines—and allies to prove BMD capabilities. We have entered a period of unprecedented testing complexity and increased testing tempo. Our flight tests will involve increasingly stressful threat representative targets as well as longer range interceptors for our homeland and regional capabilities. From October 2013 to the present, we have executed seven high profile flight tests. In fiscal year 2015 we will conduct 12 flight tests, and in fiscal year 2016 seven flight tests.

HOMELAND DEFENSE

MDA remains committed to operating, sustaining, and expanding our Nation's homeland missile defenses and requests \$1.76 billion for the Ground-based Mid-course Defense (GMD) program, or \$613 million over our PB 2015 request. This budget request will allow us to grow the number of currently deployed Ground Based Interceptor (GBI) fleet to 44 by the end of 2017, continue flight and system ground testing, continue Redesigned Kill Vehicle (RKV) development, enhance the Stockpile Reliability Program, modify the current booster to increase survivability and hardness to support RKV integration and expand the battle space to enable

later GBI engagements, upgrade the GMD ground system, and deploy upgraded GMD fire control software to enhance our ability to use land-based sensor discrimination data.

The successful FTG-06b intercept test this past June allowed us to assess the performance and interoperability of homeland defense weapon systems, including GMD, an Aegis BMD ship, the Sea-Based X-band radar (SBX), and C2BMC. An Aegis BMD ship acquired an Intermediate Range Ballistic Missile (IRBM) target and forwarded the track through C2BMC to the GMD fire control system, which developed a weapon task plan that the warfighter used to launch a GBI. The SBX acquired the target objects and forwarded precision tracks with discrimination data through the GMD ground system to the in-flight GBI. The interceptor used SBX data to locate the target objects, complete discrimination, and successfully intercept the target. Our analysis indicates that all components of the system performed as designed. This was the first flight test of an operationally configured GBI that demonstrated the ability to correctly discriminate and intercept the reentry vehicle in the presence of countermeasures. FTG-06b also demonstrated that a Capability Enhancement-II (CE-II) exo-atmospheric kill vehicle (EKV) with a cradled Inertial Measurement Unit dampens the vibration environments experienced during the failure of the FTG-06a flight test conducted in December 2010. With this successful flight test we were able to resume production of eight planned GBIs in the proven FTG-06b configuration.

We are implementing several fixes to address the failed FTG-07 flight test in July 2013. While the GBI was in flight, a voltage shift caused by battery electrolyte leakage shut down the flight computer and prevented EKV separation. We developed EKV software for CE-I GBIs, which includes a capability to reset and recover the flight computer following a voltage shift. This software was fully tested and is now fielded to all deployed CE-Is. New battery and ground ties, once tested, will be incorporated in the CE-II Block 1 deliveries beginning in fiscal year 2016.

The next flight test of the GMD system will take place late this year. GM CTV-02+ is a non-intercept test of a CE-II GBI to demonstrate the performance of alternate divert thrusters in a flight environment and test end-to-end discrimination of a complex target scene through the GMD fire control loop. The EKV will use Aegis BMD SPY-1, SBX, and AN/TPY-2 data for target selection. Data collected from this test will be used to evaluate Discrimination Improvements for Homeland Defense (DIHD) objectives. At the end of calendar year 2016 we plan to conduct FTG-15, which will be the first intercept flight test for the CE-II Block 1 GBI and the first intercept of an ICBM range target. Following a successful intercept, the plan is to deliver 10 CE-II Block 1 GBIs over the next year to achieve our goal of 44 GBIs by the end of 2017.

In addition to increasing the operational fleet from 30 to 44 GBIs by 2017, MDA will complete the refurbishment and reactivation of Missile Field 1 at Fort Greely by 2016 to provide sufficient silos for 44 GBIs. We will deliver eight new CE-IIs in 2015, upgrade eight currently fielded CE-IIs in 2016, and deliver 10 new CE-II Block 1 GBIs in 2017. Four previously fielded CE-II GBIs will be used for flight and Stockpile Reliability testing.

MDA completed a GBI Fleet Assessment last year that pointed out the need for improvements in reliability of the EKV, GBI, and ground systems, and we will continue to implement its findings in fiscal year 2015 and beyond. We have introduced an enhanced Stockpile Reliability program to better understand the service life and reliability of the fielded fleet and are conducting design and reliability analysis on the fielded CE-IIs and booster to establish performance margins. We are analyzing the GBIs to identify potential failure modes and reliability risks so that we can conduct the right ground tests. These efforts will improve confidence in the current GBI fleet and influence our development of the next GBI with a Redesigned Kill Vehicle.

We will continue development of a Redesigned Kill Vehicle (RKV) for initial deployment in 2020. The RKV will be a modular design using mature subassemblies and components to improve reliability, maintainability, producibility, and affordability when compared to the current EKV. The program will perform full qualification and reliability testing of components and subassemblies. The RKV will incorporate performance enhancements in target acquisition and discrimination and include on-demand communications. On-demand communications enables better use of off-board sensor data and provides improved situation awareness for the warfighter. The RKV also will include survivability enhancements. The first flight test of the RKV is planned for 2018, and the first intercept test is planned for 2019. We will acquire two additional boosters beginning in fiscal year 2016 to support RKV flight tests.

This year we will finish construction of the GBI In-Flight Interceptor Communication System (IFICS) Data Terminal (IDT) at Fort Drum, New York. The east coast IDT will enable communication with GBIs launched from Fort Greely, Alaska and Vandenberg Air Force Base in California over longer distances and improve defenses for the eastern United States.

MDA will implement upgrades to the GMD ground system to improve reliability, maintainability, and eliminate obsolescence problems. The existing GMD ground system was built in 2004 using technology developed in the 1990s. Without an upgrade, the ground system reliability would decay and impact GBI availability to the warfighter. Phase I will upgrade the GBI command launch equipment, GMD fire control servers, and address obsolescence problems on the IFICS data terminal by 2017. Phase II upgrades the GMD communications network and launch systems equipment and modifies the IFICS data terminal to support on-demand communications with the RKV by 2020.

Working with our Japanese partners, we completed the deployment of the AN/TPY-2 radar in Kyogamisaki in southern Japan to complement the radar currently operating in Shariki in northern Japan. This radar and a new C2BMC capability will enhance the overall performance of the Kyogamisaki and Shariki radars when operating in a mutually supporting AN/TPY-2 dual radar mode. We made a Technical Capability Declaration for the Kyogamisaki radar this past December. Together with the Shariki AN/TPY-2 radar in the north, the new radar will enhance the ability to defend our forward deployed forces, Japan, and the U.S. homeland from ballistic missile attack by providing improved tracking coverage for launches out of North Korea.

We will continue missile defense upgrades of the Early Warning Radars in Clear, Alaska and Cape Cod, Massachusetts. We expect to complete the Clear radar upgrade in 2017 and the Cape Cod upgrade in 2018. In fiscal year 2016 we will continue to support flight testing with the SBX to demonstrate improvements to discrimination and debris mitigation. Our budget request of \$72.9 million for SBX includes funds for improving reaction time and conducting contingency operations for defense of the homeland. We also plan to support a near-term discrimination capability in 2016 and fielding near-term discrimination improvements for homeland defense in 2020 to enhance the tracking and discrimination capabilities of currently deployed sensors.

In fiscal year 2016 we request \$137.6 million to continue the development of the Long Range Discrimination Radar (LRDR), the new midcourse tracking radar that will provide persistent coverage and improve discrimination capabilities against threats to the homeland from the Pacific theater. LRDR will provide larger hit assessment coverage enabling improved warfighting capability to manage GBI inventory and improving the capacity of the BMDS. We have completed technical trade studies and defined requirements for the LRDR and started acquisition planning and pre-construction activities. MDA has released a Request for Proposal (RFP) for the development, deployment, and initial operation of the LRDR. We anticipate contract award before the end of fiscal year 2015. In fiscal year 2016 we plan to conduct a System Requirement Review and Preliminary Design Review. MDA worked closely with Air Force Space Command to verify LRDR's inherent capabilities to support the space situational awareness (SSA) mission. The Command is jointly exploring system design and operations alternatives to maximize the exploitation of LRDR's inherent SSA capabilities. Air Force Space Command envisions using LRDR to augment the Space Surveillance Network capabilities as a secondary mission if it proves viable.

A Continental United States (CONUS) Interceptor Site (CIS) study, conducted in accordance with Section 227 of the fiscal year 2013 National Defense Authorization Act, determined the following sites were viable candidates to be included in the Environmental Impact Statement (EIS): Fort Drum, New York; Portsmouth SERE Training Area, Maine (Rangley); Camp Ravenna, Ohio; and Fort Custer Combined Training Center, Michigan. The Department is conducting EIS activities that will evaluate each of the four candidate sites, to include potential impacts to land use, water resources, air quality, transportation, socioeconomics and other factors established by the National Environmental Policy Act. The EIS will take approximately 30 months and should conclude in 2016. There has been no decision by the Department to move forward with an additional CONUS interceptor site. The current GBI sites at Fort Greely and Vandenberg AFB provide capability necessary to protect the U.S. homeland against the current and projected ICBM threat from North Korea as well as the future Iranian ICBM threat should it emerge. Even though an additional CONUS interceptor site would add battle space and interceptor capacity, a decision to construct the new site would come at a significant material development and service sustainment cost. Near-term, upgrading the kill vehicle on the GBI and en-

hancing the homeland defense sensor network are higher priorities and prerequisites for improving protection against limited ICBM attack.

REGIONAL DEFENSES

Deployment of regional defenses to protect our deployed forces, allies and international partners remains one of our top priorities. Our fiscal year 2016 budget request funds the continued development and deployment of defenses against SRBMs, MRBMs, and IRBMs in support of Combatant Commanders' near-term and future priorities and supports the President's commitment to EPAA.

Terminal High Altitude Area Defense

Today, four Terminal High Altitude Area Defense (THAAD) Weapon System Batteries are delivered, with the fifth planned for activation this year. To meet the demand from combatant commanders for THAAD, in fiscal year 2014, MDA accelerated procurement of THAAD Battery 7 for delivery in fiscal year 2017, 2 years earlier than previously planned. We also completed the development and fielding of THAAD Software Build 1.4, which includes critical updates to weapon system components and Information Assurance update. MDA also continued its support of the first deployed THAAD battery in Guam, exceeding the Army's required operational readiness rate.

This year THAAD will participate in two flight tests, FTT-18 and FTO-02. In FTT-18 THAAD will demonstrate an intercept of a separating IRBM target using the THAAD radar, launcher, fire control and communication, interceptor operations and engagement functions. In FTO-02, Event 2, THAAD will engage a SRBM and demonstrate advanced radar algorithms. During this operational test of our regional defense architecture, which will include the attempted intercept of an MRBM and air-breathing target by Aegis BMD, THAAD will demonstrate a layered defense capability.

For fiscal year 2016, MDA is requesting \$464.1 million for THAAD procurement, which includes the purchase of 30 THAAD interceptors and procurement of training devices for the THAAD institutional training at Fort Sill, OK. By the end of fiscal year 2016, MDA will deliver an additional 48 THAAD interceptors to the U.S. Army, for a total of 155 interceptors delivered. We will continue to support the forward deployed THAAD battery in Guam. We are requesting \$228.0 million in RDT&E funding in fiscal year 2016 as part of the continued development of THAAD capabilities, and begin concept development and risk reduction activities for THAAD follow-on capabilities. These activities will explore and mature the design concept of expanding THAAD system interoperability with air and missile defense systems, and expanding the battlespace and defended area of the current baseline THAAD Weapon System. We are also requesting \$63.7 million for THAAD operation and maintenance for 6 delivered batteries.

Aegis Ballistic Missile Defense

In fiscal year 2014, MDA continued to expand global BMD capability for the Aegis Fleet. Together with the U.S. Navy, we completed four BMD Weapons System installations on Aegis ships—one Aegis BMD 3.6 ship and three Aegis BMD 4.0 ships—and we commenced upgrades on existing BMD ships, two from 3.6 to 4.0 and one from 3.6 to Aegis Baseline 9.C1 with BMD 5.0CU. We now have a total of 33 BMD capable Aegis ships in the Fleet. We continued delivery of Standard Missile-3s to the Fleet, including 29 Block IAs and 26 Block IBs.

In fiscal year 2014, MDA conducted several critical flight tests to prove the operational capability of the Aegis BMD weapon system. In FTM-22, we successfully engaged and destroyed an MRBM target using the Aegis BMD 4.0 weapon system and an SM-3 Block IB. This test exercised the second-generation Aegis BMD 4.0 weapon system and supported production decisions for the SM-3 Block IB by completing developmental and operational testing for both the weapon system and missile. With the successful completion of DOT&E testing requirements, Aegis BMD 4.0 and the SM-3 Block IB were found to be operationally suitable and effective. FTM-22 was also the final flight test executed by the USS *Lake Erie*, the BMD test ship for over 10 years.

We also brought ballistic missile defense flight testing back to the east coast in fiscal year 2014. In FTX-18 we successfully simulated engagements against a raid of three short-range targets using the Aegis BMD 4.0 Weapons System and simulated SM-3 Block IBs to evaluate the effectiveness and suitability of the weapon system in a raid environment off the coast of Virginia at NASA's Wallops Island facility.

As construction began at the Aegis Ashore site in Romania, we conducted the first Controlled Test Vehicle at the Aegis Ashore Missile Defense Test Complex at the

Pacific Missile Range Facility (PMRF) in Kauai, HI. This flight test proved the design of the Aegis Ashore system and the ability to launch an SM-3 from land. The first Aegis Ashore intercept test from PMRF will occur in the third quarter of this year to support turn-over of the Romanian site to the Navy for operation.

In its homeland defense role, Aegis BMD executed long range surveillance and track to provide data for the GBI launch in FTG-06b. In the test, USS *Hopper*, with the BMD 4.0 weapon system, acquired the target and sent track data to the BMDS Command, Control, Battle Management and Communications system, directly contributing to successful intercept of the target.

This past fall we conducted two operationally representative tests for certification of the Navy's Aegis Modernization Baseline 9 weapon system. In FTX-20, we used our new MRBM target to exercise several BMDS sensors and C2BMC. This was also the first tracking exercise for the new Navy/MDA Integrated Air and Missile Defense Baseline 9 test ship, USS *John Paul Jones*. A couple of weeks later, in FTM-25, USS *John Paul Jones* launched an SM-3 Block IB to intercept an SRBM target while simultaneously launching two SM-2 Block IIAs against two air-breathing threats, successfully exercising the Navy's Integrated Air and Missile Defense capability inherent in Baseline 9.

In fiscal year 2016, we will continue our commitment to develop, test, and deliver global naval capability to the warfighter and support defense of our deployed forces and NATO European allies through delivery of EPAA Phases 2 and 3. We request \$448.0 million in fiscal year 2016 to procure 40 SM-3 Block IBs, for a total of 209 procured and 107 delivered by the end of fiscal year 2016. In anticipation of fiscal year 2016 and beyond Multiyear Procurement Authorization for the SM-3 Block IB, MDA requests \$147.8 million in economic order quantity for missile components for fiscal year 2016-2019 Block IB multiyear procurements. By moving to a multiyear procurement, we may realize an estimated cost savings of up to 14 percent across the FYDP. To recertify SM-3 rounds which have been previously delivered and deployed to the Fleet, MDA requests \$19.8 million for sustainment of these assets.

We request \$172.6 million for the SM-3 Block IIA cooperative development effort with the Japan Ministry of Defense. In fiscal year 2014, the SM-3 Block IIA completed Propulsion Test Vehicle-01, in which the missile and new composite canister both demonstrated successful and safe ignition and egress from the vertical launching system. Upon completion of this test and the system level critical design review, the SM-3 Block IIA transitioned into the integration and testing phase and will execute the first controlled test vehicle flight test in third quarter fiscal year 2015. Along with a total of five flight tests for the SM-3 Block IIA through fiscal year 2018, fiscal year 2016 will focus on an extensive ground test campaign to prove system design and missile capability. We are committed to delivering the SM-3 Block IIA to the Fleet to meet global threat requirements, and specifically to support EPAA Phase 3.

MDA is strongly committed to further enhancing capability of the Aegis BMD weapon system to give Sailors the tools needed to successfully execute their mission. MDA requests \$40.7 million for the BMD 4 series weapon systems to bring advanced threat and raid scenario capability to the legacy Aegis BMD Fleet. As we wrap up BMD 5.0CU development, MDA has prioritized delivering BMD 5.1 capability on schedule and requests \$180.6 million to continue software development and testing to certify in fiscal year 2018 and meet the delivery timeline of the SM-3 Block IIA missile for deployment on ships and at Aegis Ashore sites. In addition to weapon system development, MDA requests \$110.9 million to procure weapon system equipment for installation and upgrade to the BMD Fleet and \$12.6 million to sustain BMD specific equipment on the existing Fleet.

We also continue development of a Sea Based Terminal capability to provide protection of maritime forces against observed or demonstrated advanced anti-ship ballistic missiles and increased layered defense for forces ashore. Using an incremental development approach, we are incorporating BMD capability into the Navy's Baseline 9 architecture, to include terminal defense with the SM-6 guided missile and the BMD 5 series weapon systems. In 2014, we completed Sea Based Terminal Increment 1 missile (SM-6 Dual I) software build 1, and we demonstrated its performance in a simulated environment. We plan to test and certify the first increment of Sea Based Terminal capability in fourth quarter fiscal year 2015 in four Multi-Mission Warfare events, with follow-on performance testing in fiscal year 2016. Sea Based Terminal Increment 2 is on schedule to be certified and operational in 2018.

European Phased Adaptive Approach

We will continue to expand the EPAA to provide additional coverage of European NATO territory from Iranian ballistic missile threats by investing resources for EPAA development, testing and deployment. EPAA Phase 1 was implemented in

2011 with the fielding of an AN/TPY-2 radar in Turkey and stationing of an Aegis BMD ship in the Eastern Mediterranean.

MDA is on schedule to deliver EPAA Phase 2 by the end of 2015, which will enhance U.S. and NATO capabilities with the addition of more capable Aegis BMD SM-3 Block IBs and upgraded Baseline 9 weapon system with BMD 5.0CU. Phase 2 will include deployment of Aegis Ashore to Romania with capability to launch both SM-3 Block IA and IB variants and upgraded versions of the Aegis BMD weapon system. Required military construction, installation, integration and testing activities will be complete for technical capability declaration in 2015. After having tested the system at the Moorestown, New Jersey site in 2014, the deckhouse, including all weapon system equipment was disassembled, packed and shipped to Romania. MDA requests \$33.4 million in fiscal year 2016 to complete site activation, integration, and testing of the system in-country and to maintain the test site at PMRF to support system-wide testing for Phase 2 deployment. We are on track to turn over Aegis Ashore Romania to the Navy, and in fiscal year 2016 we have requested \$13.9 million for sustainment of the system once it is operational. MDA also completed installations and upgrades to the BMD-capable multi-mission ships that are shifting homeports from Norfolk, VA to Rota, Spain, which will support the EPAA Phase II architecture. The homeport transfer of four multi-mission Aegis BMD ships to Rota, Spain began in 2014 with the USS *Donald Cook* and USS *Ross*. The remaining two Aegis BMD ships, USS *Porter* and USS *Carney*, will transfer this year.

EPAA Phase 3 will improve defensive coverage against medium- and intermediate-range threats with the deployment of a second Aegis Ashore site in Poland, equipped with the BMD 5.1 weapon system and capability to launch SM-3 Block IIAs. Construction at Redzikowo, Poland is expected to begin in fiscal year 2016. We request \$30.6 million in fiscal year 2016 for procurement of Aegis Ashore equipment and \$169.2 million for the construction of the Aegis Ashore site in Poland. We need this funding to complete this site by the end of 2018.

Command, Control, Battle Management, and Communications and Sensors

C2BMC provides persistent tracking, cueing, discrimination, and fire control quality data to Aegis BMD, GMD, THAAD, and coalition partners to support homeland and regional defense objectives. Last June we successfully forwarded Aegis BMD system track data through the C2BMC system to the GMD fire control system during FTG-06b. We continue to support warfighter command and control and battle management needs across the globe by providing the strategic BMD planner, which provides Combatant Commanders situational awareness tools to support weapons release authority for homeland defense and control and tasking of forward-based AN/TPY-2 radars. C2BMC operators and maintainers are deployed forward in some of the world's highest threat spots and continue to provide around-the-clock support to the local commanders. As the BMDS integrating element, C2BMC has also demonstrated proven interoperability across regional BMD architectures.

In addition to continuing the enhancement of global BMD survivable communications and support for operations and sustainment of C2BMC at fielded sites, this year we will integrate Space Based Infrared System Increment 2 capabilities into C2BMC to support cueing of BMD sensors worldwide. We have initiated a Space Based Kill Assessment (SKA) demonstration that will host sensors on commercial satellites to collect data on missile intercepts, make an independent kill assessment, and pass that information on to the BMDS to support a multi-sensor kill assessment of the target.

The Services and COCOMs, with logistical support from MDA, are operating forward based X-band radars (AN/TPY-2(FBM)) in Japan, Israel, Turkey, and United States Central Command. All of these radars contribute to regional defense, and some, including the second AN/TPY-2 radar deployed to Japan last year, also provide a significant contribution to the defense of the U.S. homeland. Last year we also continued our AN/TPY-2 (Terminal Mode) support to warfighters on Guam. We accepted AN/TPY-2 Radar #9, providing it to THAAD Battery #4, and AN/TPY-2 Radar #10. We also awarded a production contract for AN/TPY-2 Radar #12, and for additional spares. In fiscal year 2016 we plan to develop and test advanced discrimination algorithms to counter evolving threats to provide additional capability to the Combatant Commanders as well as close Materiel Release conditions for the Terminal Mode and Forward-Based Mode AN/TPY-2 radars. We plan to deliver Radar #10 to THAAD Battery #6, start production of an Antenna Equipment Unit Float, and complete production of AN/TPY-2 Radar #12, which will be allocated to THAAD Battery #7.

We request \$536.5 million in fiscal year 2016 to develop, deploy and test BMDS sensors (includes \$138 million for the continued development of the Long Range Discrimination Radar), and \$187.5 million to sustain the nine AN/TPY-2 radars and

support the UEWrs and Cobra Dane radar. We will continue communications support for the AN/TPY-2 radars and C2BMC upgrades. We request \$450.1 million in fiscal year 2016 to develop, test, field, sustain, and operate all C2BMC spirals. We also will integrate additional space sensors into the BMDS and enhance the track and discrimination capabilities of C2BMC to provide fire control quality data to BMD weapon systems in support of homeland and regional defense. We request \$31.6 million for continued operation of the Space Tracking and Surveillance System in fiscal year 2016.

DEVELOPING NEW CAPABILITIES

MDA is developing fiscally sustainable, off-setting technologies to address gaps in the BMDS and extend our dominance in missile defense. MDA's goal for these investments is to deploy a future BMDS architecture more capable of discriminating and destroying a reentry vehicle with a high degree of confidence.

In 2014 and 2015, the warfighters emphasized the importance of improving discrimination capability, the missile defense function that distinguishes between lethal and non-lethal objects, in order to reduce the need for large, unaffordable interceptor inventories. Radars and electro-optical/infrared (EO/IR) sensors are central to this capability. However, sensors require sufficient sensitivity and resolution to measure features useful for inferring which objects are lethal or non-lethal. Between now and 2020, we will use available technology to improve existing sensors, battle management and fire control, and kill vehicles. After 2020, our plan is to field new advanced EO/IR sensors and upgrade discrimination capabilities based on our new technology investments.

Relying purely on terrestrial radars for precision tracking and discrimination of the threat is a potential weakness the enemy could exploit in the future. Adding persistent electro-optical sensors to the BMDS architecture is a high payoff solution for this gap. Last fall during FTM-25 we accelerated the Discrimination Sensor Technology flight test program by nearly 6 months to prove that our Aegis Weapon System could launch a Standard Missile based solely on tracks generated by remote sensors on Unmanned Aerial Vehicles (UAVs). MDA requests \$28.2 million for our Discrimination Sensor Technology development and test plan to provide a cost-effective, stepping stone towards our goal of achieving persistent discrimination coverage of enemy missiles in all theaters, including ICBMs targeting the homeland. In fiscal year 2016, we plan to upgrade UAV-borne sensors and demonstrate even greater discrimination capability in conjunction with Aegis flight testing in the first quarter fiscal year 2017 as a precursor to the development and test of a prototype advanced sensor under our Technology Maturation Initiatives program element.

We request \$45.4 million in Weapons Technology to continue development, integration, and testing of our high-powered directed energy program to build the foundation for the next-generation UAV-borne laser system. A UAV-borne laser would be capable of acquiring, tracking and eventually destroying an enemy missile at a much lower cost than the existing BMDS. Within the Directed Energy project, we will develop and demonstrate the technology necessary to scale laser power jointly with our Air Force and DARPA partners. The Massachusetts Institute of Technology's Lincoln Laboratory (MIT/LL) Fiber Combining Laser achieved 34 kilowatts continuous power in October 2014, a record for fiber combined lasers. The Lawrence Livermore National Laboratory (LLNL) achieved similar success with their Diode Pumped Alkali Laser system, reaching five kilowatts last year. In our effort to mature high altitude, low Mach UAVs for directed energy applications, we successfully completed five Phantom Eye flights at the Air Force's Edwards Flight Test Center in California. The Phantom Eye demonstrator achieved a record altitude of 53,241 feet and collected over 33 hours of data from launch to landing.

In fiscal year 2016, MIT/LL will conduct a Fiber Combining Laser critical design review and begin fabrication and integration of a lighter, more compact Fiber Combining Laser system, driving the weight of the system down from five kilograms per kilowatt to one kilogram per kilowatt. LLNL will demonstrate a DPAL system at 30 kilowatts average power, six times more powerful than ever achieved by a hybrid laser.

Within the Interceptor Technology project, MDA develops technology to enhance the hit-to-kill capability within current and future BMDS architectures. MDA will invest in cutting edge technology for the competitive development of the next generation, solid Divert and Attitude Control System (DACS) for the Multi-Object Kill Vehicle. We will also investigate the suitability of rail gun technology for missile defense missions.

MDA requests \$96.3 million for Technology Maturation Initiatives to build on the successes in weapons technology and discrimination sensor technology. Airborne dis-

crimination sensors and low power tracking lasers are sufficiently mature to develop flight prototypes that address complex tracking and discrimination challenges from evolving threats to the homeland. In fiscal year 2016, MDA will incorporate an advanced sensor into the tactically proven Multispectral Targeting System and MQ-9 Reaper combination to prove precision track and discrimination performance of airborne sensors at strategic ranges, or thousands of kilometers. MDA will also contract with industry for the design of a UAV-borne laser demonstrator to quantify the target acquisition, tracking, and handover performance required for boost phase missile defense under realistic conditions.

MDA requests \$46.7 million for the Common Kill Vehicle Technology effort. Last year, we began the first phase of a two phase, development strategy for the next generation of our exo-atmospheric kill vehicles. In that first phase, we defined concepts and developed requirements for a new Redesigned Kill Vehicle for our ground-based interceptor program. In fiscal year 2016, we are implementing phase II of that strategy during which we will work jointly with industry to define concepts for deploying multiple kill vehicles from a single booster. This year we plan to award several contracts with industry to define concepts for Multi-Object Kill Vehicles (MOKV). In parallel, we will reduce technical risk in several areas that are critical to making this revolutionary concept a reality. For example, we will develop and test, by 2017, MOKV command and control strategies in both digital and Hardware-in-the-Loop venues that will prove we can manage the engagements of many kill vehicles on many targets from a single interceptor. We will also invest in the communication architectures and guidance technology that support this game changing approach. Ultimately, these Multi-Object Kill Vehicles will revolutionize our missile defense architecture, substantially reducing the interceptor inventory required to defeat an evolving and more capable threat to the Homeland.

MDA requests \$17.4 million for Advanced Research and development that capitalizes on the creativity and innovation of the Nation's small business community and academia to enhance the BMDS. We are also fostering research between U.S. and foreign universities of allied nations through international cooperative science and technology projects. We awarded 216 new contracts for innovative new research in eight missile defense related topics last year.

MDA also requests \$12.1 million for the Advanced Concepts & Performance Assessment effort, which models the capability of advanced BMD technology to address evolving threats to the warfighter. The request will fund the digital simulation and hardware-in-the-loop framework and models required for testing of the Airborne Advanced Sensor, Kill Vehicle Modular Open Architecture test bed, and maturing sensor fusion algorithms.

INTERNATIONAL COOPERATION

The fiscal year 2016 budget request includes funding for regional missile defense capabilities in order to protect U.S. forces, reassure allies and partners, and build cooperative regional security architectures. MDA is engaged with over twenty countries and international organizations, such as NATO. MDA remains committed to expanding work with our international partners, to include conducting joint analyses to support partner missile defense acquisition decisions, cooperative research and development projects, deployments, Foreign Military Sales (FMS), and co-production. Our major international efforts reflect the Department's goals in the Asia-Pacific, Middle East, and Europe and will help implement EPAA, build partner BMD capacity, and support the strategic shift to Asia-Pacific.

As allies and partners invest in their own missile defense capabilities, this will enable us to build more effective regional security architectures and complement U.S. regional missile defense capabilities. MDA is currently executing an FMS case with the United Arab Emirates for two THAAD batteries and accompanying launchers, radars, and interceptors. This calendar year, we will deliver the first THAAD battery to our UAE partners to begin New Equipment Training. We continue to be actively engaged with several nations, particularly those in the Gulf region, to provide program information and cost data that may inform future decisions to procure THAAD.

We continue to have a very strong cooperative missile defense partnership with Israel. In fiscal year 2014 the Israel Missile Defense Organization (IMDO) and MDA achieved a second successful intercept using the David's Sling Weapon System to defeat shorter-range ballistic missiles and conducted the second fly-out of the Arrow-3 upper tier interceptor, demonstrating its key functional capabilities in-flight. Arrow-3 is intended to intercept longer-range threats. The Arrow Weapon System 2 is a currently fielded capability operated by the Israeli Air Force. This past September, IMDO and MDA conducted an intercept test of the Arrow-2 interceptor mis-

sile against a MRBM target over the Mediterranean. The Department also reached agreement in March 2014 with Israel regarding coproduction of the Iron Dome defense system. The agreement garnered approximately \$263 million in U.S. work share for coproduction of Iron Dome components. We are requesting \$55.0 million to procure Iron Dome radars and associated equipment.

MDA and our Japanese counterparts continue to make significant progress with the SM-3 IIA interceptor, our largest co-development effort. This development work, which remains on track for first delivery in the 2018 timeframe, would expand extended deterrence to our friends and allies and establish an important vehicle for closer defense cooperation ties. These cooperative activities enable U.S. partners to be less vulnerable to coercion and ballistic missile attack. In addition, our strong partnership with Japan enabled a technical capability declaration of the second AN/TPY-2 radar now located at the Japan Air Self-Defense Force (JASDF) base in Kyogamisaki, Japan in just over 2 years from the initial announcement to proceed. We are also working with other strategic partners in the region.

In addition to implementing our EPAA commitments to our NATO Allies, we continue to work with NATO to ensure U.S. C2BMC and NATO command and control networks are fully interoperable. We have successfully demonstrated interoperability between NATO and the U.S. command and control networks. MDA will continue to engage our NATO Allies to address international cooperation in missile defense.

CYBERSECURITY/SUPPLY CHAIN RISK MANAGEMENT

We are very cognizant of the growing cyber threat and aggressively working to ensure the Nation's missile defenses will be able to operate in a highly contested cyber environment. Potential adversaries are developing cyber forces as part of their military structure and integrating them into their overall strategy. We are working with the Armed Services, the Combatant Commands, especially Strategic Command's USCYBERCOM, and other agencies in DOD and the Federal Government to counter this growing threat.

We are improving the cyber hygiene of our missile defense capabilities by ensuring our cybersecurity infrastructure has the latest security upgrades. We are assessing our systems, suppliers, and acquisition processes and ensure our critical software and hardware are strongly configured and trusted to lessen the risk of malicious activities. We have a rigorous cyber and Supply Chain Risk Management inspection program to examine everything about our systems from the trusted supply chain to the fielded capability. This helps us ensure the highest possible compliance levels. In May 2014, DISA Field Security Operations conducted a USCYBERCOM-directed Command Cyber Readiness inspection on MDA's classified networks at MDA's Missile Defense Integration and Operations Center in Colorado. MDA received an "Excellent" score. In June 2014 the MDA Computer Emergency Response Team (CERT) was inspected as a Tier 2 Computer Network Defense Service Provider by USCYBERCOM/DISA Field Security Operations. The MDA CERT received a "Commendable" rating (second highest rating possible) and was awarded another 3 year Authorization to Operate. Over the last year we conducted four Enterprise Cyber Range Environment experiments with independent, DOT&E red team penetration testing on the Joint Information Operations Range. The purpose of these experiments is to better understand the cyber robustness of BMDS capabilities to insider threats. MDA also has one scheduled for May 2015. MDA completed 62 cybersecurity inspections worldwide to ensure DOD and MDA compliance. We follow up on these inspections to ensure remediation of any identified cyber risks.

We must build resilient cyber defenses that are capable of detecting and mitigating threats without impeding operations in order to "fight through" the cyber threat. MDA collaborates with the Director of Operational Test and Evaluation to conduct cyber penetration testing on key missile defense capabilities. We then use the results of those tests to conduct risk assessments to prioritize cybersecurity improvements, develop mitigation strategies, and improve cyber training. We are also working to develop better cyber CONOPS to ensure every network defender in every location knows how to quickly react to cyber challenges.

We are working hard to incorporate cybersecurity requirements early into our acquisition lifecycle to ensure we are building cybersecurity into missile defenses, not just bolting it on after the fact. In addition, we are working with our Industry Partners in the Defense Industrial Base to ensure they can protect any missile defense program sensitive information from getting into the hands of potential adversaries. We have seen too many instances where malicious cyber actors attempt to exfiltrate information from them, especially from their unclassified, commercial networks that have exposure to the Internet. We will continue to work with Industry and the FBI

to identify these issues and raise the costs of this type of behavior to those responsible in coordination with National authorities and in accordance with policy.

CONCLUSION

This budget balances investment in homeland and regional missile defense capabilities while pursuing advanced technology to pace the emerging threat. We will do this by improving current system capabilities and investing in the most promising technology to reverse the adversary's numerical advantage. MDA continues to aggressively pursue cost reduction measures through competition, partnering, and cooperation. MDA is on track with the Department's schedule for financial improvement and audit readiness, ensuring full accountability of resources and processes.

Mr. Chairman, we have several critical developmental and operational flight tests coming up this year and next. We will adhere to our "fly before you buy" approach, testing elements of the system to demonstrate they work before we commit to their fielding in order to ensure the warfighter will have cost-effective and reliable weapon systems. With the successful GMD intercept this past June, continued emphasis on GMD reliability and commitment to increase GBI inventory, planned RKV investments, and renewed focus on improved tracking and discrimination, I believe we are turning the corner with our homeland defenses. We remain on track with our EPAA deployments and continue to make good progress with our international partners across the globe. I am also committed to investing in advanced technologies to defeat the threat of the future and to looking for new and innovative ways to deliver missile defense capability to protect our Nation, our forward deployed forces and our friends and allies at lower cost to the government and the taxpayers.

I look forward to answering the committee's questions. Thank you.

Senator COCHRAN. Thank you very much.

Without getting into the details, I notice that the missile test that you mentioned that had been undertaken will be viewed as an improvement—indicating improvements that can be made in reliability and the functionality of the program. Were you generally satisfied with the results, or do you think you are going to have to go back to the drawing board in any major way in the production of the capability?

Admiral SYRING. Sir, we are very satisfied with the results of the flight test. And the way I have characterized it is as a necessary first step but not the end. And as you know, we were very successful in demonstrating and fixing a very difficult engineering problem with vibration of the IMU (inertial measurement unit) that took us several years to correct, and with first taking a step to a non-intercept test, which we did the year before, and then the intercept test, that really informed the path and ensured our success in that test. That correction will then be flowed to the interceptors that are being upgraded and will be part of the 44 by 2017.

Senator COCHRAN. Senator Durbin.

Senator DURBIN. Admiral, I am going to submit some questions for the record but ask one specific question.

The Department of Defense is conducting environmental impact statements on four potential sites for an East Coast ground-based missile defense site. The early indications are that the site would cost as much as \$4 billion to build. The four sites that are being explored are in the States of New York, Maine, Ohio, and Michigan.

Do you believe that an East Coast ground-based missile defense site should be a priority investment for our missile defense operations?

Admiral SYRING. Not at this time.

Senator DURBIN. If it is not your top priority, what investments do you believe are more worthy?

Admiral SYRING. Sir, thank you for the question.

As I have been consistent over the last several years, our top priority—and the combatant commanders will back me up on this at NORTHCOM (Northern Command) and STRATCOM (Strategic Command)—our top priority gap at this point is sensors and discrimination, persistent tracking and discrimination capability against the longer-range, more complex threat.

Senator DURBIN. I thank you for that. And I know that there has been a lot of speculation and a lot of interest among my colleagues about this East Coast missile defense site and maybe even some differences between the authorizers and appropriators when it comes to this issue. But I hope that we will focus on your answer, which talks about the accuracy and reliability of the system itself and how that investment is much more important for the defense of the United States than expanding beyond our current California and Alaska operations.

Thank you very much.

Admiral SYRING. Thank you, sir.

Senator COCHRAN. Senator Shelby.

ENVIRONMENTAL IMPACT STUDIES

Senator SHELBY. Admiral, you stated that one of our highest priorities is to continue to demonstrate homeland defense capability through the ground-based midcourse defense (GMD) flight testing. Would you discuss the need to evaluate the interceptor site and radar? Senator Durbin just asked you about the East Coast site, but anything else.

Admiral SYRING. Yes, sir. The environmental impact studies are going on in the four States the Senator mentioned, and that work is progressing well, along with the contingency plan that if the decision and authorization and appropriation followed were made to field an East Coast site, we would be down the road in terms of our planning. That will complete probably in the mid-2016 timeframe. There is more work we have to do this summer at a couple of the sites and then go back through a draft review process with the public and then finalize.

There is no doubt that an East Coast site eventually would provide additional battle space for the warfighter, and I have been consistent on that in terms of the time to decide. And certainly quantities are important as well.

But the more important investment today—

Senator SHELBY. Today is what we are talking about.

Admiral SYRING. Yes, sir. Is for radar and discrimination capability to make the best use of the 44 interceptors that we will have by 2017.

Senator SHELBY. In conducting your evaluation of missile defense cybersecurity vulnerabilities, which we all know are there, it is my understanding the Department of Operational Test and Evaluation partnered with the MDA to plan and to execute four complex events to examine ballistic missile defense vulnerability to cyber attacks. One more test is scheduled for May of this year is my understanding. While I recognize that you may not be able to speak about all this in public today, could you describe generally for the

committee the importance of continuing to protect our missile defense assets against any attacks, including cyber?

Admiral SYRING. Yes, sir. Critically important. And I would break our efforts down into three categories. Certainly the protection of our operational BMDS system, which I will not go into today, but equally important are the protection of our cleared defense contractors and all of the work they do for MDA and their vulnerability against cyber attack. The final category would be what we are doing with our insider threat program, which is equally important in terms of the threat to the BMDS from the people aspect and that angle.

The cleared defense contractor. I will start there. For classification reasons, I will skip the first one, sir, but I can assure you that there are extensive protections in tiering and layered defense capability in the operational system working closely with U.S. Cyber Command.

The second part is more acquisition-related and what we do to require our defense contractors who do work for MDA to have those protections of their information and design that they do for us.

Then finally, as we know, the insider threat can be detrimental in terms of information leakage and disclosure. And we have a very extensive insider threat program that we stood up this year with monitoring and other methods to ensure that we understand that part of the threat.

Senator SHELBY. Admiral, in your budget briefing at the Pentagon on February 2, I believe, this year, you noted—and I quote you—Iran may flight test an ICBM in 2015. Given the clear threat that Iran, I believe, poses to our Nation and to our allies, would you please discuss what you can in an open hearing about the Missile Defense Agency—what you are working on to stay ahead of these long-range missile capabilities and defense systems? That is part of your job. Is it not?

Admiral SYRING. I will start, Senator, with today. As we sit here today, we are protected against the possible threat from Iran. And that said, we watch and follow very closely their development. And we all know about the space-launched vehicle tests that Iran conducted, very public, in their attempt to put a satellite into orbit several weeks ago. To me, that demonstrated the continued progress in terms of that longer range rocket technology guidance system technology. And that is what feeds the intelligence estimates that they could flight test as early as this year. I think DIA's (Defense Intelligence Agency) recent assessment is more likely by 2017.

Senator SHELBY. Thank you. My time is up.

Senator COCHRAN. The Senator from Rhode Island, Mr. Reed.

Senator REED. Thank you very much, Mr. Chairman.

Admiral, thank you for your service and please thank the men and women of your command for their service also.

Admiral SYRING. Thank you.

SENSORS AND DISCRIMINATION INVESTMENT

Senator REED. Just to follow up on a point to make it clear, the current configuration of your defense system—would it engage mis-

siles coming from Iran? We do not have to have an East Coast site to do that. Is that correct?

Admiral SYRING. Yes, sir.

Senator REED. And again, following the previous questions by my colleagues, the investment in discrimination and tracking would enhance our ability to engage any missile coming from any direction. Correct?

Admiral SYRING. The sensors and discrimination investment that we have made part of this budget is focused in Alaska and other parts of the system to provide us the more complex capability against the North Korean threat. And I have been clear in terms of that is our first focus, and then as that is fielded and resources become available, we will certainly talk about a similar capability to the East Coast as well.

Senator REED. But that can be accomplished through the existing sites.

Admiral SYRING. There is certainly a tracking and discrimination, albeit not ultimately where we want to be, capability of the current sensor network.

Senator REED. And also I believe that you are engaged in, along with our allies, deploying a system in Europe. Is that correct?

Admiral SYRING. Yes, sir.

Senator REED. And that system would be specifically focused on emerging threats from Iran particularly.

Admiral SYRING. Yes, sir, but the shorter range.

Senator REED. Shorter range missiles—that is right—which is important.

One of the points that Admiral Gortney raised as the Commander of NORTHCOM—he is actually the operational commander of these systems—is that with sequestration, in his words, “Because the services can only generate revenue by going in to readiness or delaying delivery of a capability, the Missile Defense Agency does not have a readiness account that they can go to. So they are going to have to go to their new starts. They will have to put the long-range discrimination radar, the improvements to the kill vehicle and the multi-object kill vehicle on hold. It will delay the ability for them to field those capabilities.” So sequestration will hurt you in some sense more than other defense agencies.

Admiral SYRING. Sir, there would be a significant impact and place in jeopardy the new start programs that I have discussed today.

Senator REED. You also have a test scheduled in June, and as Senator Durbin indicated and my colleagues indicated, the last test was sort of a make-or-break for the whole program. Can you give us a sense of what is riding on this test? No pun intended.

Admiral SYRING. Yes, sir. The test this June is an operational test, and it will include operational firing of the Aegis Ashore site in Hawaii, along with Aegis ships as well at sea. It is not a test of the GMD system this June. We will do the test of the homeland defense system later this year in the October–November time-frame, and that will be the test of the thrusters that I spoke about in terms of fixing once and for all the vibration problem with the divert thrusters on the GBI.

TESTING

Senator REED. And a final question is in all this testing, is there a cyber component? Have we reached that point yet, or is it still just basically the aerodynamics of the system and the other qualities of the system?

Admiral SYRING. There are separate and distinct cyber tests that we have conducted in the past, and Senator Shelby mentioned several of those with us and DOT&E (Director of Operational Test and Evaluation) partnered. And they continue to test not only just MDA but the combatant commander cyber vulnerabilities extensively. Certainly the thrust of the tests that we will be doing is more operational with actual warfighters at the consoles and operating the system.

Senator REED. But as you point out, the vulnerabilities in the system are not just in your agency which is developing and fielding the systems. It is actually operators too who at one point will make the command decisions to launch or not to launch.

Admiral SYRING. Yes, sir, they will.

Senator REED. Thank you very much, Admiral.

Senator COCHRAN. The Senator from Kansas, Mr. Moran.

Senator MORAN. Mr. Chairman, thank you very much.

IRON DOME PROGRAM

Vice Admiral, good morning. Thank you for your service to our country, your presence this morning.

As the agency seeks to have appropriations for the Iron Dome program, would you describe, speak to me as to its past success in protecting Israel and its value to the United States and then tell me what the next step is, the relationship of David's Sling to this effort? Just give me in a sense the big picture.

Admiral SYRING. Sir, if I may, sir, I do not want to give you actual percentages, but I will say it was highly effective, highly successful in the last conflict in terms of Iron Dome's performance. It is a classified percentage, and we have the confidence of the Israelis not to disclose that.

That said, we continue—and what the Congress has done to provide funds for the Iron Dome has, in large part, built many of the batteries and many of the interceptors for that system. And it continues to protect the Israeli population in a way that cannot be quantified.

Senator MORAN. Would you say that it has met or exceeded its expectations, it met its task?

Admiral SYRING. Yes, sir.

CYBERSECURITY

Senator MORAN. Let me follow up on maybe questions of Senator Reed and Senator Shelby about cybersecurity. Tell me the overall structure by which our missile defense system is protected from cyber vulnerabilities. Whose responsibility is that in addition to yours? How does this agency relate to other efforts within our Government to protect ourselves from cyber attacks?

Admiral SYRING. As you are familiar, we have a tiering structure for cyber protection, and we are closely partnered with U.S. Cyber

Command at the top tier, and then below that, USSTRATCOM has the responsibility with the warfighter and JFCC IMD (Joint Functional Component Command for Integrated Missile Defense) which is the echelon below them for cyber protection, cyber monitoring, and monitoring of cyber vulnerabilities. Below that is the agency, and what we provide at our level in terms of enclave level protection and protection of design and information that flows in and out of MDA.

Senator MORAN. How serious do you consider cyber vulnerabilities as an issue for your agency and for our country?

Admiral SYRING. Extremely serious.

Senator MORAN. And would you say that things are getting, in a sense, quote, any better or are these threats only increasing?

Admiral SYRING. I view the threats as increasing, but I view what we have done at MDA and with our warfighter partners—and we have been through several inspections over the last year with excellent results in terms of meeting that threat and staying ahead of where we think they may go.

Senator MORAN. So as the threats have increased, so have our capabilities to thwart those threats?

Admiral SYRING. Yes, sir.

Senator MORAN. And I suppose the question is do you have the belief that we have the capability of increasing that defense against those increasing threats.

Admiral SYRING. I do, sir. Without going into classified areas, certainly refinement of concept of operations between us and the warfighter in terms of tiers of protection, as readiness conditions escalate, is what we have to constantly change and be prepared for.

Senator MORAN. Is the Missile Defense Agency at the top of the list in our country for the greatest level of protection?

Admiral SYRING. I do not know if it is at the top, but it certainly is near the top in terms of the warfighter concern and the warfighter precedence on the system and reliance on the system.

Senator MORAN. Thank you for your testimony.

Thank you, Mr. Chairman.

Senator COCHRAN. Thank you, Senator.

The Senator from Hawaii, Mr. Schatz.

Senator SCHATZ. Thank you, Mr. Chairman.

AEGIS ASHORE TEST FACILITY

Admiral, thank you for being here. Thank you for your great work.

My colleague in the House from Hawaii has expressed interest in making the Aegis Ashore test facility at PMRF (Pacific Missile Range Facility) in Hawaii a permanent facility. And I want to echo my support for her effort and encourage you to seriously consider that as we look at defending against threats in the Asia-Pacific region.

You noted in your remarks that the threat is continuing to grow as our potential adversaries field increasingly sophisticated ballistic missiles that have further range and are more survivable, reliable, and accurate. Last week's surface-to-air test by North Korea is another reminder of the importance of enhancing our ability to defend our forward-deployed troops and our allies in the region.

Without getting into classified information, can you expand on your assessment of the ballistic missile threats in the Asia-Pacific and how we are ramping up our defenses against them?

Admiral SYRING. Yes, sir. The threat from North Korea in particular is increasing in capacity, meaning numbers, and demonstrated capability. The other thing that we have noticed and have been watching—and it has been reported in the open press—is the no-notice launch capability that they have been demonstrating in terms of demonstrating without notice launch of short- and medium-range ballistic missiles for test purposes.

The concern I have, in terms of not just notification of launch and the ability to do that in a very short time, is the demonstrated increase of capability that we are seeing and the need to continue to outpace that with the capability that we field on our ships in particular and our THAAD system that is deployed on Guam today in terms of constant improvements on the ability of our radars and our ships to track and keep track of and then discriminate the more complex threats.

Senator SCHATZ. If you want to take this for the record or to a classified setting, I will understand. But how far along are the North Koreans in their process? Because obviously, it is going to continue to be a race with MDA. But what I had been told maybe a couple of years ago was that they were not particularly far along. I understand they continue to make progress, but in terms of years, how far out from being capable are they?

Admiral SYRING. We assess and the intelligence community assessed that they are ready to test an ICBM this year anytime. Now, we have not seen the—let me take that classified part for the record in terms of what we have seen to either back up or discredit that claim.

Senator SCHATZ. Okay, thank you.

And I am encouraged by MDA's partnership with Japan in particular to expand deterrence. I am wondering what you can share with me about potential cost sharing, and I think you can probably talk about that in the context of what is happening in Europe as well. But I am interested in where we have made progress, but also for my own information, who does the negotiating in terms of how costs get distributed and which countries where we are partnered. And whether it is MDA that does the negotiating or the Office of the Secretary, how does all of that get negotiated and how are we doing in that space?

Admiral SYRING. Senator, for Japan—and I am not going to give you the actual number. I will give you the percentage. Japan contributed roughly one-third of the development cost for the SM-3 IIA development program. Those agreements are negotiated not just with MDA but they are negotiated with our policy and State Department counterparts and their counterparts in Japan. Those agreements are then codified and signed, and that is what we follow.

Senator SCHATZ. Is there room to replicate that agreement throughout the Asia-Pacific region and perhaps in Europe as well?

Admiral SYRING. Yes, sir, and elsewhere. And, again, that would require policy and State Department approval, first for the release

of whatever we are trying to develop or sell and then, two, for the agreements that we have on cost sharing.

Senator SCHATZ. Okay. Thank you, Admiral.

Senator COCHRAN. The Senator from Missouri, Mr. Blunt.

Senator BLUNT. Thank you, Chairman.

Thank you, Admiral.

IRON DOME

I know you talked a moment ago about the Iron Dome. If I were a careful reader of all the open source material out there and actually understood what I was reading when I read all the open source material, what would I believe would be the difference in the David's Sling to where we are currently or where the Israelis are currently with the Iron Dome?

Admiral SYRING. Yes, sir. The Iron Dome is a very short-range system against counter rockets and mortars and very effective, as I stated. David's Sling is expanding that capability to higher altitudes and longer ranges.

Senator BLUNT. Does this budget keep us on track to where, as a partner in that process, we would want to be to deploy it in the hoped-for time?

Admiral SYRING. Yes, sir. The development is progressing. We have asked for a steady amount of funding for cooperative development with Israel, and we provide system engineering and test expertise to Israel. That partnership is very important. We are involved in all of the testing that goes on in Israel with David's Sling and Arrow. And they are preparing for more testing this year and then for full-rate production of the system.

Senator BLUNT. Once the tests are completed, the implementation, the deploying of the system would come pretty quickly after that?

Admiral SYRING. Very quickly.

Senator BLUNT. Very quickly after that?

On another topic, I noticed in an AP (The Associated Press) story this morning that the Russians were moving Iskander missiles into their most western part of their Baltic territories. What concerns do you have about that?

Admiral SYRING. Sir, it is more of a question for General Breedlove, the EUCOM Commander, but the question that I get in terms of the Russia aspect—and it applies to what we are doing specifically in Poland. The systems that we are deploying in Poland in no way were ever designed against Russia. They are designed against the ballistic missile threat from Iran. And certainly the provocations that you talked about is more certainly outside my lane in terms of any defense that we would have against that.

Senator BLUNT. Have we done any public forward-deploying in the Baltic States or Poland of our systems that people would be publicly aware of?

Admiral SYRING. Sir, I would like to take that for the record.

[The information follows:]

To date there have been no Ballistic Missile Defense System deployments to the Baltic States.

The deployment of ballistic missile defense capabilities to Poland was announced in September 2009 in concert with the United States' commitment to deploy the

President's Phased Adaptive Approach for missile defense in Europe (EPAA). A PATRIOT battery deployed to Poland for the first time in May 2010. Periodic PATRIOT deployments are planned to continue for training and combined exercises with our Polish allies.

The Ballistic Missile Defense Agreement between the United States and Poland entered into force in September 2011 and established the 2018 timeframe for deployment of an Aegis Ashore site in Redzikowo, Poland. We are on track to deploy Aegis Ashore to Poland as part of EPAA Phase 3.

Senator BLUNT. All right. I would like to get that answered for the record.

The Missile Defense Agency is on path toward the emplacement of 44 ground-based interceptors by the end of 2017. Are we on track to accomplish that?

Admiral SYRING. Yes, sir.

Senator BLUNT. Thank you, Chairman.

Senator COCHRAN. Thank you, Senator.

Senator Shelby.

Senator SHELBY. Thank you, Mr. Chairman, for your indulgence.

Admiral, the Senator from Hawaii a few minutes ago asked you about North Korea, and I will get into it just a little bit here. You said in your February 2 fiscal year 2000 budget briefing at the Pentagon that efforts are underway at the Missile Defense Agency, quote, to pace and stay ahead of the threat. What do you see now regarding North Korea? Do you see any effective alternative to the ground-based midcourse defense system for homeland defense against the ICBM threats?

Admiral SYRING. No, sir.

Senator SHELBY. Continuing on the ground-based midcourse defense system, your written testimony underscores MDA's commitment to fulfill the current OSD requirement to build 44 ground-based interceptors by the end of 2017 in order to meet the threat of ballistic missile attack against the United States. How feasible is this requirement, and would you need additional funding? You know, you are here today before the Appropriations Defense Subcommittee.

Admiral SYRING. Sir, we are on track exactly where we need to be in terms of on pace to meet that commitment, and the funding that I have requested is adequate to meet that commitment.

KILL VEHICLE

Senator SHELBY. Reports indicate that MDA's acquisition strategy for the redesigned kill vehicle is nearing approval at DOD. Could you update this committee on your plans for the acquisition process there, when you expect the contract to be awarded, and how important is it that we adequately fund the redesigned kill vehicle?

Admiral SYRING. Sir, the last answer is extremely critical on the need for that kill vehicle to replace the older kill vehicles that are in the field that were fielded very rapidly.

The acquisition strategy planning is going very well, and three companies that are critical to that in terms of helping us with the design and development of it are Raytheon, Boeing, and Lockheed Martin. And they are part of a Government-led design authority team that will take steps over the next 2 years to design with Government approval that kill vehicle. My plan, sir, once that design

is done and the follow-on GMD contract will be to complete production of that kill vehicle in the 2018 timeframe.

Senator SHELBY. Thank you.

I will get into THAAD, terminal high altitude area defense. Reports indicate that THAAD batteries designed to intercept incoming medium- and long-range ballistic missiles may be deployed to South Korea, as well as the Middle East, in the near future. It is my understanding that the Missile Defense Agency is expected to deliver as many as 48 additional interceptors to the Army for a total 155 interceptors delivered by the end of 2016.

The President's budget proposal is \$464 million for THAAD procurement. Could you speak to the warfighter demand and need for operational needs of these batteries given current instability in the Pacific and the Middle East and the world?

Admiral SYRING. Yes, sir. We will have four complete batteries turned over to the Army by the end of this year. And as you know, there is part of one deployed to Guam and future deployment decisions under consideration by the warfighter. That budget request supports not only continued interceptor procurement but also necessary development to keep ahead of the threat in terms of what we see for the future.

Senator SHELBY. It goes right to the security of the Nation. Does it not?

Admiral SYRING. Yes, sir.

Senator SHELBY. I want to get into the Aegis right now. Aegis had a very successful flight test last November—you know it well—in which the system simultaneously intercepted two cruise missile targets and one short-range ballistic missile target.

The President's budget proposal is \$559 million for procurement of the Aegis.

I understand that plans are underway to deploy Aegis Ashore in Eastern Europe perhaps in light of recent Russian aggression. Could you discuss the importance of protecting our allies in Eastern Europe, and how can this committee be helpful in supporting your efforts?

Admiral SYRING. Sir, I would just like to reiterate that the deployment of the Aegis Ashore site to Eastern Europe was not ever about what Russia either was doing then or today. It is all about protecting our allies and our deployed forces from the threats in the Middle East.

Senator SHELBY. Okay.

Admiral SYRING. And we are absolutely on track to deliver Romania by the end of this year and Poland by the end of 2018.

Senator SHELBY. You mentioned earlier about the long-range discrimination radar. I understand that the Missile Defense Agency issued its final request for proposals for the long-range discrimination radar in January of this year, and the contract award is expected to be later in August perhaps.

The President's budget proposes \$138 million for its continued development.

How important is this space-based tracking and discrimination capability as the threat progresses in the world?

Admiral SYRING. It is critically important for especially what we see in the intelligence estimates for capability of North Korea and

Iran to develop more complex threats which would include decoys and countermeasures and the ability of having a long-range sensor that can discriminate the proper lethal object for us to intercept.

Senator SHELBY. This gives you an additional tool you did not have. Would it not?

Admiral SYRING. Yes, sir.

Senator SHELBY. Thank you.

Thank you, Mr. Chairman, for your indulgence.

Senator COCHRAN. Thank you, Senator.

SEQUESTRATION

Admiral Syring, if sequestration is triggered in fiscal year 2016, the Missile Defense Agency's top line would be reduced by roughly \$1.4 billion, over 18 percent of the total budget. This reduction would be applied, as I understand it, indiscriminately to each program and project. If reductions were applied in a more thoughtful manner, which programs would you seek to protect?

Admiral SYRING. Sir, first, Mr. Chairman, the first point I would make is we have not received any official guidance from the Department in terms of what our sequestration amount would be. If it was applied equally, we would take our proportion, share of that cut.

Where I see us having to go with lack of being able to go to a readiness account, as Admiral Gortney testified, would be to either put on hold or delay the new start capability that we have discussed, the radar and the kill vehicle and maybe even some of the discrimination improvements that I view as critical to keep our Nation safe. And depending on how deep the cuts go would be how deep I needed to go into not just the new starts but other capability and testing that we are working on outside of that. There would be deep ramifications to those cuts if they went to that level.

Senator COCHRAN. Thank you. It sounds like we want to avoid that.

Admiral SYRING. Yes, sir.

Senator SHELBY. Mr. Chairman.

Senator COCHRAN. Senator.

Senator SHELBY. Is it possible—I know we have a busy schedule, all of us do—to think about meeting the Admiral in a classified briefing because I think all of this, what we are talking about missile defense and defending our Nation and our allies around the world, is very important in a classified hearing. It would be up to you as the chairman to call it, but I think we would get a lot out of that.

Senator COCHRAN. I think you have made a good point, and that is a reasonable suggestion, which we will consult with other Senators and try to find a time that would be suitable.

The Senator from Alaska, welcome. We are glad you are here. We have run out of questions.

GROUND-BASE MISSILE DEFENSE SYSTEM

Senator MURKOWSKI. Well, I am here to help you out, Mr. Chairman. I appreciate you holding over for just a moment.

This is an important issue for us in the State of Alaska, as we host the ground-based missile defense system there at Fort Greely.

I have had an opportunity to visit with Admiral Syring on many occasions. He has had occasion to go up to Alaska. He usually comes in the middle of winter. So he is tested up there.

But we pay attention to what is going on from Alaska's perspective. We sit closer to North Korea than we would like to on many days. So we know very well the importance of a strong homeland ballistic missile defense, and we are very proud, again, to host the cornerstone of that defense in Alaska. Not only do we worry about North Korea, but we worry about Iran. And I think you look at the events going on in the world today, the justification for maintaining and constantly improving a capable, credible, and highly advanced long-range defense radar.

If you could discuss for the committee this morning, Admiral, not only the capabilities that the long-range discrimination radar site based in Alaska will bring to missile defense, but also the current timelines for LRDR and perhaps the impact to the timeline if we do not see the fiscal year 2016 budget approved at the requested level.

Admiral SYRING. Yes, ma'am. The LRDR is critically important to where I see the threat from North Korea going in the near future with the capability of becoming more complex, requiring more interceptors and us and the warfighter needing the assurance that we have persistent track and discrimination capability against that threat. It is a must.

Senator MURKOWSKI. I want to ask you to reinforce that because some might suggest that this would be nice to have. But you are saying this is a must, this is a must-have.

Admiral SYRING. Ma'am, I am reiterating. And what you pay us and me and the Missile Defense Agency to do is to keep our capability ahead of the threat. And this radar is important to give the warfighter that tool and that awareness of the threat that the re-entry vehicle would pose and where it is amongst many other things that will fly along with it. And the radar and the discrimination capability that it provides to give the warfighter that information to properly intercept the threat is vital.

Senator MURKOWSKI. So it is vital to our national security interest.

Can you speak to the timeline that we are looking at here?

Admiral SYRING. Yes, ma'am. We have actually received proposals from the companies last week, and we are in source selection and evaluation and anticipate to award before the end of this fiscal year.

Senator MURKOWSKI. Good, good.

And then perhaps from a bigger threat perspective, I mentioned North Korea and how we do pay attention. We watch the news. We see what is happening with the number and the complexity of the missile tests that we are seeing increase out of North Korea.

Can you just give us your thoughts this morning on North Korea and the threats that they pose to our Nation?

Admiral SYRING. If you read the open source reporting and news, they continue to test regularly. They continue to test without notice. They continue to demonstrate not just increased short- or medium-range capacity but capability as well. And all of that concerns

me in terms of its development and testing and its application potentially to the more longer range threats.

Senator MURKOWSKI. Well, it is a reminder, I think, to us, Mr. Chairman, that with so much in the news today—we are focused on what is going on in Iran. We are focused on what is going on in Syria. We should never ever take our eye off other corners of the world where we have individuals and regimes that are just potentially very, very volatile.

Then a final question for you, Admiral. Is this year's budget adequate to meet the needs within your agency?

Admiral SYRING. Yes, ma'am.

Senator MURKOWSKI. Mr. Chairman, thank you for the opportunity to ask these questions. And again, Admiral, thank you for your leadership in an area where I think, again, we want to make sure that we are prepared for whatever that threat may be and to always be leading out, leaning forward. Thank you.

Senator COCHRAN. Thank you, Senator. We appreciate your participation in the hearing and your thoughtful questions to our witness.

And to our witness and his colleagues who are here, thank you very much for your cooperation and assistance to our committee. Your participation and the way you have handled questions by members of our committee indicate an understanding and a depth and an appreciation of not only the issues that we have raised but also the overall importance of what we are doing, making sure that we are protecting the security interests of the United States. So we thank you for that.

ADDITIONAL COMMITTEE QUESTION

And other members of our committee, as illustrated by our senior Senator from Alabama and distinguished friend, we appreciate everyone on the committee participating.

Senators are, of course, permitted to submit additional written questions, if we have any, and we would appreciate your responding to them within a reasonable time. And we look forward to a continuing dialogue with our leadership in uniform throughout the fiscal year 2016 appropriations process.

[The following question was not asked at the hearing, but was submitted to the Department for response subsequent to the hearing:]

QUESTION SUBMITTED TO VICE ADMIRAL JAMES D. SYRING

QUESTION SUBMITTED BY SENATOR THAD COCHRAN

Question. LPD 17 is proving to be an extremely capable ship for the U.S. Navy. In fact, the Navy recently down selected the LPD hull form for the new LSD Class. Do you believe there is merit in further exploring the idea of using the LPD hull form to support national missile defense as part of a sea based component? Would you be willing to work with the shipbuilder through BMD war games or other analysis to better understand the merits of that approach?

Answer. Yes, the Missile Defense Agency (MDA) believes there is merit to examining the feasibility of any capability that could potentially increase national ballistic missile defense (BMD) and the BMD system architecture. MDA would be willing to work with Industry and the U.S. Navy to determine the feasibility and merit of using ship variants based on the LPD hull form in potential BMD applications.

SUBCOMMITTEE RECESS

Senator COCHRAN. The Defense Subcommittee is scheduled to reconvene on Wednesday, March 25, at 9 a.m. to receive testimony on the Department's budget for the Defense Health Program. Until then, the subcommittee stands in recess.

[Whereupon, at 11:21 a.m., Wednesday, March 18, the subcommittee was recessed, to reconvene at 9 a.m., Wednesday, March 25.]