

**DEPARTMENT OF DEFENSE APPROPRIATIONS  
FOR FISCAL YEAR 2011**

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**WEDNESDAY, APRIL 21, 2010**

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

The subcommittee met at 10:30 a.m., in room SD-192, Dirksen Senate Office Building, Hon. Daniel K. Inouye (chairman) presiding.

Present: Senators Inouye, Dorgan, Feinstein, Bond, and Shelby.

**DEPARTMENT OF DEFENSE**

**MISSILE DEFENSE AGENCY**

**STATEMENT OF LIEUTENANT GENERAL PATRICK J. O'REILLY, DIRECTOR**

OPENING STATEMENT OF CHAIRMAN DANIEL K. INOUYE

Chairman INOUYE. I'm pleased to welcome Lieutenant General Patrick O'Reilly, Director of the Missile Defense Agency (MDA), before the subcommittee to discuss the fiscal year 2011 budget request for missile defense.

The request before us today continues the administration's efforts to achieve three goals: sustaining homeland defense against intercontinental ballistic missiles; increasing focus on defense against regional threats; and procuring and fielding proven technologies.

In fiscal year 2011, MDA's budget requests totaled \$8.4 billion, a \$500 million increase over fiscal year 2010. And I'm pleased to note that the request includes increases of \$300 million for ground-based missile defense (GMD), \$245 million for aegis ballistic missile defense, and \$160 million for theater high altitude defense over the levels approved by fiscal year 2010.

These near-term programs are providing missile defense assets today, a capability that this subcommittee strongly supported for many years. However, even these near-term programs have challenges. First, the GMD program had a failed intercept test last January that is still under review. Industrial-based challenges threaten the continued production of the ground-based interceptor missiles. And there is concern over whether the program has enough test articles to ensure its reliability out to 2032.

Second, because of the continued success and steadfast progress of the aegis BMD system, the administration is now demanding

more of the program, which presents new risks and new challenges. The aegis program is involved in several simultaneous efforts, concurrently developing multiple upgrades to the standard missile, upgrading ships, conducting intercept tests, and starting the aegis ashore program to deploy land-based versions of the system in Europe.

Furthermore, fiscal year 2010 is the last year of the standard missile block IA production, even though we have not yet begun to test the next block upgrade. At a time when the combatant commanders are clamoring for more aegis missiles on their deployed ships, this seems like a risky proposition. And it is of particular concern, considering the test's schedule delays of the new missile.

Finally the terminal high altitude area defense (THAAD) program has demonstrated remarkable achievements over the past few years. Accordingly, MDA is now being called on to more rapidly procure and deploy THAAD batteries to the Army and conduct more rigorous and demanding tests of the system.

And so, I look forward to the hearing today on the progress of these three programs that provide the foundation for missile defense for the United States and our friends and allies around the globe.

In addition, MDA has many other programs that support the current and future missile defense architecture that we will discuss today.

The vice chairman is now involved in another subcommittee, so may I call upon Senator Shelby. Do you have anything?

Senator SHELBY. Thank you, Mr. Chairman.

Mr. Chairman, I appreciate this hearing that you've called. And I look forward to hearing from General O'Reilly.

Chairman INOUE. Senator Dorgan.

Senator DORGAN. Mr. Chairman, I'm not able to stay for the entire hearing, but I wanted to be here and welcome the General. And I will put my statement in the record.

Thank you very much.

Chairman INOUE. Your statement will be accepted for the record and the subcommittee has also received statements from Senators Cochran and Bennett which will also be included in the record.

[The statements follow:]

PREPARED STATEMENT OF SENATOR BYRON L. DORGAN

I would like to personally thank you, Lieutenant General O'Reilly, for appearing before this subcommittee to discuss our nation's missile defense. The defense of our great nation against nuclear or some other type of missile attack is a very important mission, and you are key to executing that mission. I look forward to discussing this important topic with you today.

PREPARED STATEMENT OF SENATOR THAD COCHRAN

Mr. Chairman, I am pleased in joining you in welcoming Lieutenant General O'Reilly to testify before our subcommittee today.

Providing for the Nation's defense is an important and basic responsibility, and a functional, capable missile defense system is a key component of our national defense strategy as adversarial nations continue to pursue the capability to launch mid and long range rockets and missiles.

As Iran continues to pursue a nuclear capability, and as nuclear and missile technology continues to proliferate, we need to ensure efforts to modernize our missile

defense system continue to address these growing threats. I am pleased to see that this budget recommends increased funding for missile defense programs, but I know there are still many challenges in making sure we meet the needs of the warfighter and stay one step ahead of emerging threats.

General O'Reilly, I look forward to hearing your testimony today to help inform the subcommittee as we consider the fiscal year 2011 funding needs for the Department of Defense.

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PREPARED STATEMENT OF SENATOR ROBERT F. BENNETT

Mr. Chairman, Senator Cochran, I thank you for holding this hearing to examine our nation's missile defense programs, and appreciate the dedicated interest you direct toward this critical work. General O'Reilly, please accept my appreciation and that of my constituents for the fine work you are doing at the agency.

We live at a time when there is talk of a "potential" or "growing" missile threat from another nation almost every day in the news, on the Internet, and on the television. Suffice it to say, the MDA's mission to "deploy . . . an effective National Missile Defense system capable of defending the territory of the United States against limited ballistic missile attack" is more important now than ever.

It's no small thing—as some have described the challenge of intercepting an enemy missile, to "hit a bullet with a bullet." Doing so requires developing a smart system that can identify and develop technologies worthy of taxpayer funding, and equal to meet the high charge given to the MDA. Given the ever-evolving threat environment, my interest lies in seeing that the MDA's plans to protect our nation now and in the future are adequate for the demands of our national security, and are based in proven concepts and technologies, rather than theory alone or unrealistic expectations. In addition, I am eager to hear how the agency plans to address industrial concerns for the production of solid rocket motors. For better and worse, the Federal government (i.e. the administration), doesn't always act as the monolithic whole that the outside world often perceives. Specific agencies pursue their various agendas, often without realizing how their individual decisions will affect the condition of others. Such unintended consequences could be mitigated if not largely avoided if the administration, taking into consideration procurement at NASA, DOD, and MDA, would provide a comprehensive, strategic response.

While I'm fully aware of the many challenges already on your plate, I hope that you will energetically continue to find solutions to all of the agencies challenges as you work to promote the security of our nation. I look forward to our discussion and hearing your testimony.

Chairman INOUE. General, it's your show, sir.

SUMMARY STATEMENT OF LIEUTENANT GENERAL PATRICK J. O'REILLY

General O'REILLY. Good morning, Chairman Inouye and other distinguished members of the subcommittee.

It is an honor to testify before you today on the Missile Defense Agency's activities to continue developing and fielding an integrated, layered ballistic missile defense system to defend the United States, its deployed forces, allies, and friends.

Under the oversight and direction of the Department of Defense's Missile Defense Executive Board, the Missile Defense Agency proposes an \$8.4 billion fiscal year 2011 program that is balanced to achieve the six policy goals in the Ballistic Missile Defense Review report and the combatant commanders' and services' missile defense needs, as stated in the latest U.S. Strategic Command's prioritized capabilities list.

First, defense of the homeland against limited attack: We continue to upgrade the ground-based midcourse defense system to increase reliability, survivability, ability to leverage a new generation of missile defense sensors, and testing to accredit our simulations. Missile fields in Alaska are in an optimum location to intercept missiles from either northeast Asia or the Middle East. The purchase of five additional ground-based interceptors and the produc-

tion of components to support extensive reliability testing and missile refurbishment will sustain our production capacity until 2016 and critical component manufacturing beyond 2020.

Second, defense against regional threats: By 2015, we plan to buy 436 SM-3 IA and IB interceptors, 431 THAAD interceptors, 14 AN/TPY-2 radars, 9 THAAD batteries, and have 38 ballistic missile defense-capable ships available.

Our regional missile defenses are adaptable to the unique circumstances of each combatant command. For example, we determined, based on updated intelligence estimates, that our previous plan for the defense of Europe could be rapidly overwhelmed, and thus made ineffective, by the large number of Iranian medium-range ballistic missiles today. Additionally, the previous program did not cover most of southeastern Europe that is exposed to today's ballistic missile threats, would not have been available till 2017, and would have not been adaptable to changes in future threats to Europe.

Therefore, we plan to deploy a larger number of interceptors in Europe in four phases as the missile threats from the Middle East evolve. The first two phases, in 2011 and 2015, respectively, provide protection against short- and medium-range ballistic missiles. The third phase, in 2018, provides protection against intermediate ballistic missiles. And the fourth phase, in 2020, provides capability to intercept intercontinental ballistic missiles from the region in which they are launched.

Third, prove the ballistic missile defense system works: We have submitted a comprehensive integrated master test plan, signed by the Director of Operational Test and Evaluation, the services' operational test agencies, and the Commander, U.S. Strategic Command, to ensure we fly our missiles before we buy them.

The two greatest challenges we face in developing missile defense is acquiring cost-effective, reliable targets and improving quality control of all products. Over the past year, we've initiated a new target acquisition strategy to increase competition, improve quality control, reduce costs, and provide backup targets, starting in 2012.

However, the precise performance of missile defense systems requires stringent manufacturing standards. Until we complete planned competitions, including the greater use of firm fixed-price contracts and defect clauses, we have to motivate some senior industry management through intensive inspections, low award fees, insuring—or issuing cure notices, stopping the funding of new contract scope, and documenting inadequate quality control, to influence future contract awards.

Fourth, hedging against threat uncertainty: In accordance with warfighters' priorities, we are focusing our future technologies to develop more accurate and faster tracking sensor platforms to enable early intercepts, enhance command and control networks to rapidly fuse sensor data to handle large raid sizes, develop a more agile SM-3 interceptor to destroy long-range missiles, to enhance discrimination of reentry vehicles from other objects, and to develop high-energy laser technologies.

Fifth, develop new fiscally sustainable capabilities over the long term: The Missile Defense Agency is complying with the Weapons System Acquisition Reform Act of 2009 by establishing and man-

aging six baselines: cost, schedule, technical, tests, contract, and operational baselines, increasing service in COCOM participation and increasing emphasis on the competition in all phases of a program's acquisition lifecycle. We are reviewing over \$37 billion of contracts for competition over the next 2 years.

Six, expand international missile defense cooperation: We are currently engaged in missile defense projects, studies, and analysis with many countries including Japan, Poland, the Czech Republic, Israel, Australia, the United Kingdom, Germany, South Korea, NATO, the United Arab Emirates, Bahrain, Saudi Arabia, and Kuwait. Additionally, Poland and Romania have agreed to host our aegis ashore sites, and we cooperatively developed the SM-3 IIA interceptor with Japan.

We also continue to support expert dialogue on cooperative efforts with the Russian Federation, whose surveillance radars would enhance our ability to monitor ballistic missile development and flight testing in southwest Asia.

#### THE NEW START TREATY

Relative to the recently expired START Treaty, the new START Treaty actually reduces constraints on the development of missile defense programs. Unless they have new START-accountable first stages, which we do not plan to use, our targets will no longer be subject to START constraints which limited our use of air-to-surface and waterborne launches of targets which are essential for cost-effective testing of missile defense interceptors against medium- and intermediate-range ballistic targets in the Pacific area. In addition, under new START, we will no longer be limited to five space-launch facilities for target launches.

Additionally, the new START Treaty does not constrain deployment of ballistic missile defense. Article V, section 3 of the treaty prohibits the conversion of intercontinental or sea-based launch ballistic missiles—launchers—to missile defense launchers and vice versa, while grandfathering five former intercontinental ballistic missile (ICBM) silos at Vandenberg Air Force Base, already converted for ground-based interceptors.

MDA never had a plan to convert additional ICBM silos at Vandenberg. Moreover, we determined that if more interceptors were to be added at Vandenberg Air Force Base, it would be less expensive to build a new ground-based interceptor missile field, which is not prohibited by the treaty.

Regarding submarine-launched ballistic missile launchers, some time ago, we examined the concept of launching missile defense interceptors from submarines, and found it unattractive and an extremely expensive option. As the subcommittee knows, we have a very good and significantly growing capability for sea-based missile defense on aegis-capable ships.

In conclusion, MDA is teamed with the combatant commanders, services, other DOD agencies, academia, industry, and our international partners to address the challenges of managing, developing, testing, and fielding capabilities to deter the use of ballistic missiles and effectively destroy them, once launched.

## PREPARED STATEMENT

Thank you, Mr. Chairman. And I look forward to answering the subcommittee's questions.

[The statement follows:]

## PREPARED STATEMENT OF LIEUTENANT GENERAL PATRICK J. O'REILLY

Good morning, Chairman Inouye, Senator Cochran, other distinguished Members of the Committee. It is an honor to testify before you today on the Missile Defense Agency's support to the Ballistic Missile Defense Review (BMDR) and our \$8.4 billion fiscal year 2011 budget request to continue our mission to develop and field an integrated, layered, Ballistic Missile Defense System (BMDS) to defend the United States, its deployed forces, allies, and friends against ballistic missiles of all ranges and in all phases of flight. This budget request reflects the strategy and policy stated in the BMDR report and the prioritized missile defense needs of our Combatant Commanders and the Services as stated in the latest U.S. Strategic Command's (USSTRATCOM) Prioritized Capabilities List (PCL).

The Missile Defense Agency has been operating in accordance with the principles outlined in last year's Weapons System Acquisition Reform Act. This includes establishment of formal baselines for the system component managers, Service participation through the USSTRATCOM-led Warfighter Involvement Process, and increased emphasis on competition at all phases of a program's acquisition life cycle. All of these steps, I believe, will maximize the return on the taxpayer's investment dollar.

Under the oversight and direction of the Missile Defense Executive Board (MDEB), chaired by the Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L), MDA proposes a fiscal year 2011 program that is balanced to achieve the six strategy and policy goals documented in the BMDR report:

- Defend the homeland against a limited ballistic missile attack;
- Defend U.S. forces, allies, and partners against regional threats;
- Deploy new systems only after effectiveness and reliability have been determined through testing under realistic conditions;
- Develop new capabilities that are fiscally sustainable over the long term;
- Develop flexible capabilities that can be adapted as threats change; and
- Expand international cooperation.

## DEFENSE OF THE HOMELAND AGAINST LIMITED ATTACK

The Ground-based Midcourse Defense (GMD) system forms the foundation of our homeland missile defense against limited ICBM attack today. We continue to upgrade GMD to increase reliability and survivability and expand the ability to leverage new BMDS sensors as well as test GMD to accredit our simulations. Since the beginning of fiscal year 2009, MDA has delivered five new GBIs, upgraded Fire Control and Command Launch Equipment software, completed construction of a second GBI missile field at Fort Greely, Alaska, and delivered a new silo and an additional In-Flight Interceptor Communication System Data Terminal at Vandenberg Air Force Base, California. Additionally, we are completing the missile defense upgrades to the Upgraded Early Warning Radar (UEWR) in Thule, Greenland, and we have transferred operation of the Cobra Dane Early Warning Radar and the Beale and Fylingdales UEWRs to the Air Force. We are continuing planning and design work to upgrade the Clear, Alaska Early Warning Radar.

We are requesting \$1.3 billion in fiscal year 2011 for GMD to continue our GBI refurbishment and reliability sustainment programs to: help sustain the fleet to 2032 and support a service life extension decision around 2027; procure an additional 5 GBIs; complete Missile Field 2 in a 14-silo configuration to accommodate a contingency deployment of eight additional GBIs; upgrade GMD Fire Control ground system software to ensure GMD leverages BMDS increased discrimination and tracking capability as sensor, data fusion and battle management network matures; and complete the installation of a second GMD command and control node at Fort Greely, Alaska. Additionally, we will continue operations and sustainment of the Sea-Based X-band radar (SBX) platform to prepare for transfer of the SBX operations to the U.S. Navy in 2012. Finally, we will continue development of technologies to enhance Standard Missile 3 (SM-3) variants to protect our homeland in the future by having the capability to intercept long-range ballistic missiles early in flight in the regions from which they were launched. To validate this concept, the Under Secretary of Defense (AT&L) requested the Defense Science Board independently assess the viability of developing capability for early intercept of ICBMs. Our GMD sustainment, refurbishment and test strategy gives us the flexibility to

adjust to the uncertainty in the future ICBM threat. Although, we experienced a GBI vendor production break after the last procurement of GBIs in 2006, the purchase of 5 additional GBIs, and supplying “limited life” GBI components for refurbishments will sustain our production capacity until 2016 and beyond. We will conduct stockpile surveillance of GBIs by testing all limited life components as GBIs are refurbished through 2032. Data collected from future GMD flight tests, results from the aging surveillance program, and future intelligence estimates regarding the pace of ICBM growth will inform decisions on the need to procure additional GBIs.

#### DEFENSE AGAINST REGIONAL THREATS

Our fiscal year 2011 budget request balances the war fighter’s needs to develop new capabilities and grow our missile defense capacity. An integrated deployment of Aegis BMD and Terminal High Altitude Area Defense (THAAD) forms an effective, layered, regional missile defense. The Aegis BMD is a mobile system, designed to defeat short- to intermediate-range missiles above the earth’s atmosphere, and the THAAD is a rapidly deployable system, designed to engage short- to medium-range missiles both above and within the Earth’s atmosphere. Aegis has more than twice the engagement range of THAAD. Additionally, Patriot Advanced Capability 3 can add an additional layer and point defense against Short Range Ballistic Missiles (SRBMs).

We are developing regional missile defense elements that can be adapted to the unique circumstances of each Combatant Command region. For example, we plan to deploy missile defenses in Europe in four phases as missile threats from the Middle East evolve over time. The Phase 1 capability (planned to begin deployment in 2011) will provide initial protection for southern Europe from existing short- and medium-range threats using sea-based interceptors and forward-based sensors. Phase 2 (~2015) deploys the SM-3 IB interceptor at sea and at an Aegis Ashore/land-based SM-3 site. In collaboration with OSD Policy, USSTRATCOM, the Department of State, and United States European Command (USEUCOM), we are preparing to begin negotiations with Romania to locate an Aegis Ashore/land-based SM-3 site on its territory in 2015. Phase 3 (~2018) employs SM-3 IIA on land and at sea to protect NATO from SRBM, MRBM, and IRBM threats. Poland has agreed to host this Aegis Ashore/land-based SM-3 site. The Phase 4 architecture (~2020 timeframe) features the higher velocity land-based SM-3 IIB, a persistent sensor network, and enhanced command and control system to intercept large raids of medium- to long-range missiles from the Middle East early in flight.

Since the beginning of fiscal year 2009, MDA has delivered 27 SM-3 Block IA interceptors and upgraded 3 additional ships (for a total today of 20 Aegis BMD ships); upgraded the U.S.S. *Lake Erie* with the next generation BMD fire control software that increases the number of threat missiles that can be simultaneously engaged and more effectively uses data from missile defense sensors external to the ship. We have also delivered two THAAD batteries (the first unit is planned to be operationally accepted by the Army by the end of this year). We have separately deployed one U.S.-operated X-band AN/TPY-2 radar to Israel on a contingency basis. We have also installed C<sup>2</sup>BMC hardware and software upgrades at command and control nodes at U.S. Pacific Command, USSTRATCOM, U.S. Northern Command and USEUCOM and began C<sup>2</sup>BMC installation in the U.S. Central Command.

We are requesting \$1.6 billion for Aegis in fiscal year 2011. We will continue the design, qualification, and testing of the SM-3 IB interceptor; manufacture 30 SM-3 IB test and production verification interceptors (we plan to procure a total of 436 Aegis SM-3 IA and IB interceptors by 2015), and upgrade 3 additional Aegis BMD engagement ships (two Aegis BMD 3.6.1 destroyers and one 4.0.1 destroyer) for a total of 23 BMD capable ships by the end of fiscal year 2011 and 38 BMD capable ships by 2015. We will continue development and testing of the Aegis BMD 4.0.1 and 5.0 fire control system to launch SM-3 IB and IA interceptors against threat missiles when they are beyond the range of the ship’s own radar. We also will continue the co-development of the SM-3 IIA interceptor with the Government of Japan to increase significantly the area defended by the Aegis BMD system with its 21-inch diameter rocket motors, two-color seeker, and increased kinetic warhead divert capability. We also will continue to design the first Aegis Ashore battery that will be installed for testing at the Pacific Missile Range Facility in 2012.

We are requesting \$1.3 billion for THAAD in fiscal year 2011. We plan to deliver the second THAAD battery (we plan to procure 6 batteries by 2015), add a second launcher platoon to each battery to double the firepower to 48 interceptors, procure 67 interceptors (we plan to procure a total of 431 interceptors by 2015), and com-

plete hardware and software upgrades to the communications suite to enable THAAD to use fused data from all BMD sensors.

We are requesting \$455 million for sensors in fiscal year 2011. We plan to upgrade the AN/TPY-2 radar software to facilitate its use as a surveillance radar or as a THAAD battery fire-control radar, optimize the radar's ability to leverage assistance by external sensors, and support the contingency operations of AN/TPY-2 radars deployed in Japan and Israel. We will continue to develop a Concurrent Test, Training and Operations capability to provide operational BMD sensors (including the UEWRS, Cobra Dane and Sea-Based X-band radars) the capability to conduct training and testing while continuing to provide on-line missile defense, upgrade AN/TPY-2 and Sea-Based X-band radar discrimination and dense track management software, and conduct ground and flight testing to support accreditation of sensor models and simulations.

We are requesting \$343 million for Command and Control, Battle Management and Communications (C<sup>2</sup>BMC) in fiscal year 2011. We plan to provide automated planners to aid a Combatant Command's deployment of BMD assets according to its concept of operations and conduct ballistic missile defense battles according to its tactics, techniques, and procedures. Furthermore, we will develop and deploy an upgraded version of our C<sup>2</sup>BMC hardware and software to provide new battle management functions that enable shoot-look-shoot tactics between layers of U.S. and international partners' missile defense assets, control multiple BMD radars, correlate and combine sensor data from multiple sensors tracking the same threat into one system track, provide real-time awareness of the battle as it develops in accordance with a Combatant Command's concept of operations, and enable engagement coordination among BMD elements in accordance with regional Area Air Defense Plans. Additionally, C<sup>2</sup>BMC will participate in and analyze results of ground and flight tests to support accreditation of models and simulations and support war games and exercises.

MDA played a significant role in the conduct of the Ballistic Missile Defense Review. The agency provided technical analysis and data as required by the leaders of the review to support their effort to answer the questions posed by Congress. Preliminary analytical results were then presented to the departmental leaders, including the Secretary and Chairman, who then made recommendations to the President. Although MDA provided these architecture assessments, it is important to recognize the decision to deploy the recommended European PAA architecture was not based solely on detailed performance predictions. Rather, the decision to deploy an Aegis SM-3-based architecture to Europe was based on the need for a flexible defense against an evolving threat from the Middle East. First, the previously proposed European missile defense architecture lacked a sufficient number of interceptors to defend against the current and emerging numbers of medium-range ballistic missiles (MRBMs) being fielded by Iran. Simply put, with a notional two interceptor shot doctrine, the 10 GBI interceptors proposed for Poland would easily be overwhelmed by a raid size of 6 threat missiles launched towards European targets. Second, with the European PAA, we can deploy a missile defense capability to Europe earlier than the previous Program of Record, with GBIs in Poland and an X-Band Radar in the Czech Republic. NATO Europe is threatened by a short-range and medium-range ballistic missile threat now, so this was an important variable in the decision. Upon the completion of testing in 2011, we could begin the deployment of proven capabilities to defend against the MRBM threat. Third, by creating a re-locatable, land-based version of our most capable regional missile defense system, the Aegis Ballistic Missile Defense (BMD) system, Combatant Commanders could have the capability to adjust their missile defense architectures to address the uncertainty of future missile threats without the need to develop a new missile defense system. These systems can be deployed in any theater in a reasonably short period of time. Fourth, the increased defended areas and larger raid size capacity resulting from planned enhancements to the Aegis BMD system are expected to increase the cost-effectiveness of a European missile defense against the growing missile threat over this decade. Finally, while we currently have a limited defense system against potential Intercontinental Ballistic Missile (ICBM) threats originating in the Middle East or Northeast Asia, there is no technical reason to indicate that this system would not be further enhanced by the deployments envisioned in Phase 4 of the PAA. It is important to note that the missile defense capability needs identified in the BMDR are consistent with capability needs listed in the recently approved, independently developed, classified USSTRATCOM missile defense Prioritized Capability List.



## PROVING THE BALLISTIC MISSILE DEFENSE SYSTEM WORKS

A key tenet of the BMDR is to sufficiently test the capabilities and limitations of a missile defense system before we begin procurement, or we will “fly before we buy.” As such, missile defense projects are subject to production decisions by USD (AT&L). Additionally, we use the Services’ standard material release and operational certification processes that also rely on developmental and operational test data prior to formally fielding initial capability. Both THAAD and AN/TPY-2 have production decisions by USD (AT&L) and Army Material Review Boards planned for this year. We are requesting \$1.1 billion in fiscal year 2011 to provide targets and support to missile defense projects to test new capabilities under developmental and operational conditions, including the use of actual threat missiles, to support accrediting our models and simulations and production decisions by USD (AT&L). In collaboration with the Services’ Operational Test Agencies, USSTRATCOM, and the Director, Operational Test & Evaluation, we submitted a comprehensive Integrated Master Test Plan (IMTP) in March that describes our plan through fiscal year 2015 to conduct over 150 test events to obtain specific data necessary to accredit our models and simulations and support operational assessments. The IMTP also describes our testing to support European PAA deployment decisions. To support a Phase 1 decision in 2011, we have completed 10 Aegis BMD intercept tests of short range targets. We will conduct an Aegis BMD test against an intermediate-range ballistic missile target prior to the Phase 1 deployment. Likewise, there are system level ground tests, exercises, and simulations to test system effectiveness and interoperability. The IMTP also describes our testing of the two-stage GBI and several GMD intercept tests against long-range targets. I concur with the January 2010 DOT&E January assessment that “if MDA can execute the IMTP as planned, successful VV&A of BMDS models and simulations should result, enabling quantitative and objective rather than subjective assessments of the BMDS capability in the future.” I further agree with the DOT&E conclusion that “objective assessments of the BMDS capability are still a number of years in the future.”

Our recent flight test results have been mixed. From October 2008 through today MDA achieved 5 of 7 successful hit-to-kill intercepts and a number of “firsts” in BMDS testing. In December 2008, the GMD system engaged an IRBM target launched from Kodiak Island, Alaska, using a GBI launched from VAFB in the most operationally realistic test to date that demonstrated our ability to fuse sensor data from five on-line sensors. Unfortunately, the target in that flight test failed to release countermeasures. In March 2009, with soldiers operating the system using tactics, techniques, and procedures developed by the U.S. Army, we conducted THAAD’s first dual salvo endo-atmospheric engagement of a threat-representative separating ballistic target. The Navy conducted an intercept using an Aegis SM-2 Block IV (terminal defense) in February 2009, and we conducted an SM-3 IA intercept in July 2009. In October 2009, we supported Japan’s intercept test of an SRBM using the Japanese destroyer JS MYOKO.

Although we have had three intercepts out of three previous attempts using the GMD system, our newest variant of the kill vehicle, relying on data from the Sea-Based X-band (SBX) radar, failed to intercept a target in January 2010 during a flight test to measure GMD’s performance at its maximum operational intercept range. The GBI launched successfully from VAFB and the newly designed LV-2 long-range target successfully flew for the first time out of the Reagan Test Site in the Kwajalein Atoll 7,500 km away. It was a very valuable test because we collected extensive data on the performance of the SBX and GBI, the advanced exo-atmospheric kill vehicle (EKV), and the target. We discovered new failure modes for the SBX, the EKV flew more than twice the distance it had flown in previous tests, and we collected significant new data on the EKV’s ability to acquire, track, and discriminate the target. The failure investigation is expected to continue for several more months before root-cause is determined and verified. It is my intent to immediately correct any deficiency and repeat the test as soon as feasible. In contrast, the most recent attempt to conduct a THAAD test last December was of no value because of a target missile failure. The THAAD interceptor was not launched and the system was not exercised. Despite the cost of more than \$40 million for that test and subsequent program delays, we gained no new information on the performance of the THAAD system.

The two largest challenges to executing the U.S. missile defense program is acquiring a cost effective set of reliable targets and improving quality control. Over the past year we have initiated steps to acquire a new set of targets of all ranges, including Foreign Material Acquisitions, to verify the performance of the BMDS. Our new target acquisition strategy, initiated in fiscal year 2009, procures targets in production lots to increase competition, quality control, reduce costs, and ensures

the availability of backup targets starting in 2012. For the next 3 years, we must continue to rely on an intensive inspection and oversight process to motivate mission assurance.

Due to the precise nature of the operation of missile defense systems, very high standards of quality control and an enduring culture of disciplined mission assurance by the industry workforce is essential. We have had many successes in improving our prime contractor and supplier quality assurance. In each case, companies have been willing to identify shortfalls, invest in new capital assets and attain experienced leadership in changing cultures to establish the enduring discipline required to consistently deliver precision missile defense products. However, not all companies have sufficiently improved. Until we complete planned competitions, including the greater use of firm fixed price contracts, we will have to motivate greater attention by senior industry management through intensive government inspections, low award fees, the issuance of cure notices, stopping the funding of new contract scope, and documenting inadequate quality control performance to influence future contract awards by DOD.

#### HEDGING AGAINST THREAT UNCERTAINTY

Missile defense technologies must be developed to adapt and upgrade our systems to counter future changing threats. In accordance with the PCL, we are focusing our future technologies in four areas: (1) developing more accurate and faster tracking sensors on platforms to enable early fire control solutions and intercepts; (2) developing enhanced command and control networks to link and rapidly fuse sensor data to handle large raid sizes of missile threats; (3) developing a faster, more agile version of our SM-3 interceptor to destroy long-range missiles early in flight; and (4) developing discrimination techniques to rapidly resolve Reentry Vehicles from other nearby objects. Additionally, we continue to research technologies for destroying boosting missiles with directed energy. We are developing more mature technologies for mid-term deployment decisions around 2015 and conducting science and technology experiments for far-term (around 2020) advanced capability deployment decisions.

One of the highest priority capabilities requested by the war fighter community is a persistent and precise missile tracking capability. We are requesting \$113 million in fiscal year 2011 for the Space Tracking and Surveillance System (STSS) and Near Field Infra-Red Experiment satellite operations. This space operations work will demonstrate the utility of remote missile tracking from space and reduce the risk of integrating the remote tracking data of future satellites into missile defense fire control systems. MDA launched two STSS demonstration satellites on September 25, 2009. We continue testing and operating the two demonstration satellites, including cooperative tests with other BMDS elements, and demonstrating these satellites against targets of opportunity and scheduled tests involving targets. We are also requesting \$67 million in fiscal year 2011 for a new program start, the Precision Tracking Space System (PTSS), comprised of a network of remote tracking satellites, communications, and ground stations. Key attributes of the PTSS are its limited mission, uncomplicated design, lower costs, use of mature technologies, and integration with legacy data management and control systems to provide a persistent remote missile tracking capability of the areas of the earth that are of most concern for missile defense. Lessons learned from the two STSS demonstration satellites currently on orbit will inform decisions on the development of a prototype PTSS capability by the end of 2014. After validating the prototype design in ground testing in 2014, we plan to fly the first prototypes while we have industry teams compete to produce the remaining satellite constellation for initial constellation operations by 2018.

We are also requesting \$112 million for fiscal year 2011 for the development and testing of a remotely piloted vehicle (RPV) based missile tracking sensor system, or Airborne Infrared (ABIR) sensor system, to track large raids of ballistic missiles early in flight. We are completing an analysis of the optimum RPV platform and sensors to integrate into an effective early missile tracking system.

For fiscal year 2011, we are requesting \$52 million for C<sup>2</sup>BMC enhancements to develop a net-centric, Service-oriented architecture, to rapidly fuse sensor data and provide data to distributed fire control systems to intercept enemy reentry vehicles early, optimize shoot-look-shoot opportunities, and economize the number of interceptors required to defeat a raid of threat missiles. We are pursuing enhanced C<sup>2</sup>BMC capabilities and experiments to integrate interceptor fire control systems with ABIR, STSS, and other new sensor technologies. We work closely with USSTRATCOM and the COCOMs to develop and deliver the optimum C<sup>2</sup>BMC architectures in their regions.

We are requesting \$41 million in fiscal year 2011 to develop components that increase the speed of our SM-3 family of interceptors with advanced divert capability, faster boosters, and lighter kill vehicles. We are studying the use of a derivative SM-3 IB kill vehicle and derivatives of the first and second stages of the SM-3 IIA interceptor as part of the development of the SM-3 IIB long-range missile interceptor.

We are requesting \$99 million for fiscal year 2011 to conduct continued research on high energy lasers. This past year we saw the significant accomplishments of the Airborne Laser Test Bed (ALTB) as it completed preparatory tests which ultimately led to two successful and historic experimental shoot-downs of a solid rocket on February 3, 2010, and a boosting, liquid-fueled, Foreign Material Acquisition (FMA) target on February 11, 2010. We are preparing for another test against an FMA, at nearly twice the distance, later this spring. We will continue to investigate multiple high energy laser technologies to characterize their performance while validating the modeling and simulation of long range directed energy beam propagation and beam control. Additionally, we are currently supporting the USD (AT&L)/Director for Development, Research and Engineering (DDR&E) comprehensive review of all DOD high energy laser programs to establish a department wide program for developing and applying high energy laser capabilities. We anticipate this review will define the ALTB's role in the future development of high energy lasers.

#### DEVELOP NEW, FISCALLY SUSTAINABLE CAPABILITIES OVER THE LONG TERM

MDA's preferred approach to developing new missile defense capabilities is to evolve and upgrade existing capabilities to leverage the cost-effectiveness of utilizing existing Service training, personnel and logistics infrastructures. The fiscal sustainability of missile defense systems is largely determined by the cost of operations and sustainment. Therefore, MDA executes "hybrid management" of projects with the designated lead Services by embedding "Service cells" in MDA joint project offices to make design and development decisions associated with Doctrine, Organization, Training, Leadership, Personnel and Facilities (DOTLPF) to assure MDA products efficiently align with Service processes and operational concepts.

MDA has established six baselines (cost, schedule, technical, test, contract, and operational baselines) to plan and manage the execution of missile defense projects. I approve the baselines of technology programs, but jointly approve with lead Service Acquisition Executives the baselines of MDA projects in product development. These baselines not only assist in our cost-effective management of MDA projects, but also provide visibility to the MDEB and Congress on the progress of our execution. The baselines of all of our projects are established in spring and will be submitted to Congress in a Baseline Acquisition Report (BAR) in June. Finally, these baselines will form the basis for USD (AT&L) production decisions.

#### EXPAND INTERNATIONAL MISSILE DEFENSE COOPERATION

As stated in the BMDR and Quadrennial Defense Review (QDR), a key strategic goal is to develop the missile defense capacity of our international partners. We are currently engaged in missile defense projects, studies and analysis with over twenty countries. Our largest international partnership is with Japan. We are co-developing the SM-3 IIA missile, studying future architectures, and supporting their SM-3 IA flight test program. In Europe, we are participating in the NATO Active Layer Theater Ballistic Missile Defense (ALTBMD) command and control program and war games, continuing technology research projects with the Czech Republic, and planning for the European PAA deployments, which include the installation of Aegis Ashore sites, one each in Romania and Poland. Collaboration with Israel has grown to involve the development and deployment of the Arrow Weapon System, which is interoperable with the U.S. missile defense system. MDA has completed and the United States is now in the final negotiation of an Upper Tier Project Agreement with Israel for cooperative development of an exo-atmospheric interceptor and amending the United States-Israel Arrow Weapon System Improvement Program agreement to extend the system's battle space and enhance its ability to defeat long-range ballistic missiles and countermeasures. MDA and Israel are also jointly developing the David's Sling Weapon System to defend against shorter range threats, to include some ranges that the PAC-3 system cannot engage. Additionally, MDA is active in supporting the Combatant Commands through international symposiums, bi-lateral and multi-lateral dialogs, planning, and analysis with Allies and international partners to help them understand the benefits of integrated missile defense in their regions.

## CONCLUSION

Missile defense is a key part of our national security strategy described in the BMDR to counter the growing threat of ballistic missile proliferation. The New START Treaty has no constraints on current and future components of the BMDS development or deployment. Article V, Section 3 of the treaty prohibits the conversion of ICBM or SLBM launchers to missile defense launchers, and vice versa, while “grandfathering” the five former ICBM silos at Vandenberg AFB already converted for Ground Based Interceptors. MDA never had a plan to convert additional ICBM silos at Vandenberg and intends to hedge against increased BMDS requirements by completing construction of Missile Field 2 at Fort Greely. Moreover, we determined that if more interceptors were to be added at Vandenberg AFB, it would be less expensive to build a new GBI missile field (which is not prohibited by the treaty). Regarding SLBM launchers, some time ago we examined the concept of launching missile defense interceptors from submarines and found it an unattractive and extremely expensive option. As the committee knows, we have a very good and significantly growing capability for sea-based missile defense on Aegis-capable ships.

Relative to the recently expired START Treaty, the New START Treaty actually reduces constraints on the development of the missile defense program. Unless they have New START accountable first stages (which we do not plan to use), our targets will no longer be subject to START constraints, which limited our use of air-to-surface and waterborne launches of targets which are essential for the cost-effective testing of missile defense interceptors against MRBM and IRBM targets in the Pacific area. In addition, under New START, we will no longer be limited to five space launch facilities for target launches.

MDA is working with the Combatant Commanders, Services, other DOD agencies, academia, industry and international partners to address the challenges and difficulties of managing, developing, testing and fielding new military capabilities to deter use of ballistic missiles and effectively destroy them once launched. Implementing these war fighter priorities takes time, since the production time for a missile and radar is over 2 years and establishing and training a unit to create and deploy a military capability takes an additional year. Our fiscal year 2011 budget funds the war fighters’ near-term priorities while building the foundation of a layered defense system with our partners and friends that can provide an adaptive, cost-effective strategy to counter ballistic missile proliferation in the future.

Thank you, Mr. Chairman. I look forward to answering your questions.

Chairman INOUE. General, last year, the President announced a shift in plans involving Europe and missile defense, and the cornerstone of this new approach is the so-called aegis ashore program. Can you give us an update on where we are at this moment?

## PHASED ADAPTIVE APPROACH—AEGIS

General O’REILLY. Yes, sir. We have, last year, completed an analysis of alternatives of different ways of providing the type of capability that the SM-3 missile offers. It has a range of well over 800 kilometers, and it has a defended area that is quite substantial—about twice what THAAD’s is. And THAAD is about 10 times the area of—what a Patriot unit can protect. So, we’re looking for that type of capability, and we identified that by simply taking the aegis system, the combat-proven aegis system, and moving it to the land and keeping as much of it as identical as possible, reducing developmental costs. At that point, it would give the combatant commanders and the Navy the opportunity to have the same system at sea as they have at land. They have a worldwide logistics data—or logistics base, training base, and the personnel to man these systems very quickly.

So, we’re very mature in the development of the aegis ashore. It has been tested and operated in a test-type configuration at White Sands, for shorter range, for over 10 years. So, we’re in a very good position, sir, to begin the integration of it and delivering the first test unit.

Chairman INOUE. So, you're on schedule now.

General O'REILLY. Yes, sir.

#### PARTNERSHIP WITH JAPAN

Chairman INOUE. Now, one of our largest partners in defense is Japan, and you have been developing the standard missile block IIA upgrade with them. Can you update us on the status of this upgrade program and the partnership with the Japanese, overall?

General O'REILLY. Sir, this program is in its fifth year of development. We have matured the components, both what the Japanese will develop and are developing and what the U.S. industry is developing. We have identified all of the steps that are necessary to have a successful integration. Our first flight test will be in 2014 and our first intercept will be in 2015. We are in full agreement with the Japanese Government and have full support in this development. Within the next year, we will begin our discussions on the production arrangement between the United States and Japan.

Chairman INOUE. So, the change in government there has not affected the progress of your partnership.

General O'REILLY. No, sir. I have held several high-level reviews of this program with the Japanese Government since then, and they have indicated they are in full support and their commitments are solid.

Chairman INOUE. I have several other questions to ask, but they're more technical in nature, so I will submit them to you, General.

May I now call upon Senator Shelby.

#### GBI NUMBERS AND TESTING

Senator SHELBY. Thank you, Mr. Chairman.

General O'Reilly, I have several questions for the record.

You said that you need 52 GBI interceptors—30 in Alaska and 22 to be used for testing and spares. The GMD program manager stated that 19 of the 22 GBIs will be used in testing, through 2019. That will leave us with just three GBIs to conduct reliability flight testing through 2032—long span there. That would be one test every 4 years, so to speak. What kind of analysis have you done to the number of ground-based interceptors that you really need? This seems to be kind of stretching it.

General O'REILLY. Sir, the—first of all, when the program manager made that comment, he is also referring to some missiles we have already procured for flight testing. But—

Senator SHELBY. Explain what you mean.

General O'REILLY. We will procure 52 between now and the end of the GBI—

Senator SHELBY. Okay.

General O'REILLY [continuing]. By the current plan—30 for operational capability, 4 for operational spares that—we don't have an exact number on those operational spares, we just use that as a hedge—and then 18 more will be used in testing. By 2019, we will have tested 20 missiles, including the ones we've previously tested. We will have, at that point, two missiles plus the four operational spares. So, there's a total of six missiles to make a determination,

over the last 10 years of the estimated life, if we don't extend the life.

These—I will make the comment that these missiles were designed with an—a very large effort on its reliability and maintainability. And, just for example, those 30 missiles in the silos will be tested 4.3 million times over its 10-year or 20-year period. So, we believe we have a very rigorous program to test the reliability, and we're going to remove the missiles from the silos about halfway through their life and replace their limited-life components, and test those. So, sir, we believe we're in a position to have very good insight into how these missiles are aging.

Senator SHELBY. You feel real comfortable with this and your plan?

General O'REILLY. Yes, sir. And—but, we do have the procurement of five new GBIs—

Senator SHELBY. Okay.

General O'REILLY [continuing]. Which will reopen the production lines, which—most of them have completed their previous production. So, we'll have five lines open through 2016—will be qualified, in case we do find that there's a—circumstances where we need to go back to the industrial base.

#### AEGIS AND GMD COMPETITION

Senator SHELBY. General O'Reilly, we all like competition, because out of competition, generally, comes good products. And I think that's best for the taxpayer and the warfighter. Why would you recompute the GMD program, but attempt to sole-source, some people believe, the aegis ashore program?

General O'REILLY. Sir, the decision—

Senator SHELBY. Is there a reason?

General O'REILLY. Yes, sir. The decision process I have to go through is, Is there a competitive or alternate sources to produce a product whenever we're—need to acquire a new product? In the case of GMD, we put out a market survey, and the market survey indicated that there were several companies that were willing, and we deemed viable, to actually compete for GMD. In the case of aegis ashore, the concern was the timelines we are on to deliver the first test unit and the second one—the second unit, which will be the first one in Romania—or the one in Romania. That timeline required us to have—whoever the manufacturer is—to have extensive experience with the aegis weapon system, because we want it to be identical onshore as it is at sea. However, our intent is, after that point, to compete remaining aegis ashore sites.

Senator SHELBY. Okay.

#### SM-3 COST

I want to get into the SM-3 with you. The 2011 budget provides for the procurement of—as I understand it—of eight SM-3 block IBs. Now, it's my further understanding that MDA is still working on research and development for 30 SM-3 block IBs for testing. But, according to the Future Years Defense Program (FYDP), it appears that, in 2012, MDA expects to order 66 SM-3 block IB missiles. That appears to be a pretty aggressive production increase from 2011 to 2012. Have you considered adding further funding for

missile production in 2011 to even out the workload and decrease the cost per missile? Because, we are interested in quality, but we're interested in cost, too, aren't we?

General O'REILLY. Yes, sir. We have considered that. The decision for the current delivery of the SM-3 IA missiles was made in 2008, because it takes 2 years to procure—to build a missile. So, if we had additional funding now added to the budget, it would not deliver additional IAs until 2013. So, I—we do have a recognized limitation in the number of missiles we have available to us. But, my ability to deliver missiles in 2 years—by that time, as you said, sir, our plans are that we'll have the IB in full rate.

On the question of rating, though—how quick we can ramp up—the first, second, and third stage of the SM-3 IB is identical to the IA.

Senator SHELBY. Okay.

General O'REILLY. So, we are—what we're talking about is the front end, the kill vehicle itself. And so, we've—we do believe that that is achievable, given it's that one component of the missile which will be different.

#### START TREATY AND IRANIAN THREAT

Senator SHELBY. My last—I know my time's running out—but, General, a lot of us are concerned with aspects of the new START Treaty and its potential to limit the U.S.'s options to deploy missile interceptors. In addition, when the Obama administration decided to terminate third-site plans in Europe, Secretary Gates said the decision was based on intelligence findings that, and I'll quote, "The threat of potential Iranian intercontinental ballistic missile capabilities have been slow to develop."

A new report issued just this month now states, and I'll quote, "With sufficient foreign assistance, Iran could probably develop and test an intercontinental ballistic missile capable of reaching the United States by 2015."

With this report of Iran having an ICBM capability by 2015, third-site plans canceled, and a treaty that may potentially limit our response to attacks, How do you effectively plan to counter threats like this? And I'm glad that we have Senator Feinstein and Senator Bond on this subcommittee, because they're deep into the intelligence field on this.

General O'REILLY. Yes, sir. Sir, what we recognized last year, going through the Ballistic Missile Defense Review, was the inherent uncertainty in intelligence estimates. If you go back over history, there is not a pattern that we can follow. So, our recognition was, we need, as the Secretary of Defense has determined, a hedge, in case we underestimate or overestimate the threat in, especially, the case of intercontinental ballistic missiles coming from countries that currently don't possess them. So, that is why the—we have proposed in this budget to continue completing missile field number 2 at Alaska, so we have eight additional silos than what I testified to last year. And we have also tested the two-stage GBI, or are going to test it in June. So, we're right on the verge of testing that missile. We have a—it's a—it's very close in design and—to the three-stage. So, we believe we will have the ability to have a second—or an additional shot opportunity with that missile, and addi-

tional silos, if needed, to replace a shot opportunity we were originally looking for in Europe.

Senator SHELBY. Don't you have to basically take the Iranian threat as real, as dangerous to this country?

General O'REILLY. Yes, sir. We do. They're—

Senator SHELBY. Thank you, Mr. Chairman.

General O'REILLY [continuing]. Them and other countries.

Senator SHELBY. Thank you.

Chairman INOUE. Thank you very much.

Senator Dorgan.

#### START TREATY AND LIMITS TO RESPONSE

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

Let me just say, though, that I think—my reading of the START Treaty is one that does not impose any limitations on our response to attacks. I know some are raising those questions. I don't believe the START Treaty does that at all. And, General, you're welcome to respond to that, if you wish.

General O'REILLY. Sir, I've personally not found a single case where it does limit, other than prohibitions against plans we never considered doing, like converting silos.

Senator DORGAN. I just—I mean, that there—I know there'll be some disagreement on the START Treaty, and I've already seen some. And my colleague just referenced some of the discussion. But I don't believe there's any limitation in our response to attacks.

#### AIRBORNE LASER PROGRAM

I want to make the point that we spend about \$132 billion, as I understand it, on missile defense work since—I think in the last 25 years or so; \$132 billion is a lot of money. I was particularly interested in the Airborne Laser Program, which I understand has now been descope'd to a research and development program. Can you tell me, how much have we spent on airborne laser? Do we ever expect airborne laser will become a part of our future plans?

General O'REILLY. Sir, we have spent over \$5 billion on airborne laser since 2002, when it became part of the Missile Defense Agency. It previously was an Air Force program. We have successfully tested the intercept of a ballistic missile, earlier this year, for the first time. We accomplished many scientific historical breakthroughs in that work. We are planning to conduct another test next month, at twice the range of the last test. We destroyed the missile quicker than we calculated we would. So, everything indicates that our basic models, which were in debate, are fairly sound, and we will continue to validate our models and our simulations.

There were operational concerns about the range of this particular laser and—compared to the range of surface-to-air missiles that we know exist around the world today. However, the airborne laser has proven to be a very valuable platform for testing this technology, because of the beam control in the front end of the missile and the aircraft, the way it's been designed to carry more than one laser. So, because of that, the coil laser, which is currently on board, that we tested, was a 19—it was in the 1990s it was designed. Since then, our national labs have produced many compelling new technologies that they are demonstrating, that the De-



partment is reviewing now, to also integrate onto the airborne laser for more testing over the next several years, to identify a laser that's got the standoff distances we're looking for.

#### CRUISE MISSILE DEFENSE

Senator DORGAN. Well, let me send you some additional questions on that.

Let me ask another question that has always intrigued me. Ballistic missile defense is important. You're working on it. There are several different plans for deployment. And I understand all that. The question is—let's assume that we get this up and installed, and we're going to feel safer, in terms of response to a ballistic missile attack. A far more likely attack, in my judgment, would be for a—from a cruise missile acquired by an adversary that—we have cruise missiles that are in far greater quantity than ballistic missiles. Is there a defense system for our country against cruise missiles? And if so, what is it?

General O'REILLY. Sir, the prioritized capabilities list for missile defense that the Strategic Defense Command—or, the Strategic Command—STRATCOM—has provided, in March, to me is an integrated air and missile defense capabilities—prioritized capabilities list representing all the combatant commanders and the four services. And from that, they have indicated both needs for cruise missile, air-breathing, and missile defense. My charter, my responsibility is on the missile defense side. So, the services, right now, are doing the development for the cruise missile and the air-breathing threats.

Senator DORGAN. But, isn't it the case that the ballistic missile defense activities have been far more robust than the—any activities to defend against cruise missiles? And I think it—the likelihood is 5, 10, 15, 20 years from now, it's much more likely an adversary would find some kind of a truck, whether that vehicle be land based or sea based or air based, to acquire a cruise missile and deliver a cruise missile with terrain-following guidance at 500 feet above the ground. And meanwhile, we've got a big ballistic missile defense system to protect against intercontinental ballistic missiles that go up into space and come down, and somebody's threatening our country with a nuclear warhead on a cruise missile. Isn't it the case that we have a much more robust activity on the one than we do on the other?

General O'REILLY. Sir, I'm not in a position to comment on the development of the cruise missile capability. But I will tell you that on the aegis system, for example, and when we integrate with the Army's Patriot and lower-tier systems that do handle cruise missiles, in both those cases, we participate in ensuring that our capability that we develop for missile defense is also being used for those other mission areas.

Senator DORGAN. All right.

Well, I'm going to send you some additional questions, General. I'm very interested in what we're developing and the kind of protection that it affords. All of us worry that future adversaries or present adversaries can acquire increasingly sophisticated weaponry to threaten this country; there's no question about that. And I think there's a wide range of threats to protect against.

Let me make one final point, Mr. Chairman, and that is, all of this costs a lot of money, and when any of us ever talk about the Federal budget deficit, that's—we also have to make the point that all of this ought to be paid for, year by year, one way or another, in a budgeting process. So, this is expensive, but nonetheless, very important for the country and its protection.

Chairman INOUE. Thank you.

Senator Bond.

#### MISSILE DEFENSE STRATEGY—EUROPEAN DEFENSE

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

And welcome, General O'Reilly. Thank you for being here to discuss the \$8.4 billion—billion missile defense budget for fiscal year 2011.

In light of the significant changes made last year to our strategy, I'm pleased to see that the President has taken a serious approach to missile defense by increasing his request by over \$500 million. Our ability to protect the American homeland, American troops overseas, North Atlantic Treaty Organization (NATO) allies, international partners, is tied directly to an effective global missile defense strategy. However, the President's announcement to alter our regional missile defense architecture in Europe to a phased adaptive approach gives me and several of my colleagues serious concerns. Breaking our previous missile defense treaties with Poland and the Czech Republic not only undermines two of our NATO allies, but puts at risk our ability to protect our friends and allies in Europe and the Middle East.

In addition, Iran's capability to target our partners, to include the continental United States, with an intercontinental ballistic missile, or ICBM, is growing, both quantitatively and qualitatively. As a result, our ability to knock down a potential ICBM from Iran, whether aimed at the United States or a friend, like Israel, I'm afraid, may be degraded.

Under the original missile defense plan in Europe, the third site in Poland was intended to provide a capability to knock down an ICBM from Iran by 2013. Now, that's subsequently slipped to 2017. General, in your testimony before the Armed Services Committee yesterday, you stated that it is reasonable to believe that Iran may have an ICBM by 2015. And Chair Feinstein and I, on the Intelligence Committee, are following that very closely. I won't comment on it, but that's what you said.

I'm doing the math here, and it seems that the agreement to build, in Romania and Poland in 2015 and 2018, a new phased adaptive approach, weakens our missile defense strategy and our ability to protect our friends and allies in Europe and the Middle East. I'm equally uncertain that the new approach will provide 100-percent assurance to American families from continental—in the continental United States being vulnerable to an ICBM from Iran.

We know that more shots at an ICM are better. So, with the third site in Poland gone, are you sure that that will—or, at least, for the near future—are you sure that that will not weaken our capacity to knock down an ICBM in the nearer term?

General O'REILLY. Sir, first of all, I do recognize the uncertainty in the intelligence estimates that have been evident over the years on when ICBM capability will be available. As you say, sir, yesterday I said I could not deny that there would be a capability in 2015 if Iran is getting outside help and if they continue to develop that capability.

The concern I had with the original proposal for the defense of Europe was, number one, the timelines haven't changed. I used to be responsible for delivering that—that it takes 5½ years, from the beginning to the end of a production of a missile field, another 6 months to integrate it. And the combatant command over there asked for another year to integrate that capability. So, when we were discussing, previously, of a 2013 capability, we were assuming a start years prior to where we are now, which the requirement for the ratification of the ballistic missile defense agreements in Poland and the Czech Republic were required before we could begin that work. So, what has happened to the delay that moved it to the 2017 timeframe was primarily driven by the ratification, which did not occur in either country.

Second, the capability that we are developing—it became very evident that Iran—the concern is, number one, Will they have this capability? The other concern is, What quantity are they going to procure? And we have the capability, with 30 operational GBIs, to handle—if you use the shot doctrine of two missiles against every one threat—of up to 15 being launched. The combatant commanders reviewed that. This was done with the Joint Chiefs to make an assessment on, Is that the right number, given the threat uncertainties at this time?

But, as you also say, sir, we also recognize we're going to need, in the future, a large number of interceptors that are capable of intercepting ICBMs. And they found the most cost-effective approach would be to forward-base them on our ships and at our aegis ashore sites, so we can put larger numbers, much larger than we previously proposed.

Senator BOND. I thank you, sir.

#### RUSSIA AND THE START TREATY

Next, I have concerns the administration will be compelled to slow down its phased adaptive missile approach defense in Europe if Russian threat—Russia threatens to pull out of the START agreement. In particular, as the Senate Armed Services Committee hearing brought out yesterday, the Russian Defense Minister has outlined his own interpretation of START by stating unequivocally that a linkage between increased missile defenses in Europe that impede Russia's nuclear efforts will shape its ability to effectuate START. To what extent we—he plans to modify it, we can only imagine.

But, under the new arrangement, it seems to me that Russia feels it has the ability to back out of START if they don't like the way our missile defense architecture is growing in Europe.

Given recent actions by Russia, I would change President Reagan's theory for dealing with Russia to "Verify, but don't trust." And I would like to know whether you feel that this indication by Russia is a threat that will—that they will get out of the START

Treaty if we carry forward with some of the things that we're doing.

General O'REILLY. Sir, we believe it is in the national interest of the Russian Federation to complete this treaty agreement, and in our national interest. But, on the hand—either side could back out, and both sides have made unilateral statements that they reserve that right, but that's recognized in the treaty.

From a legal perspective that I rely on with the Department of Defense lawyers, I have no legally binding restrictions, under the new treaty, to curtail any of my developmental work in missile defenses, nor have I been given any instructions to even consider that.

Senator BOND. I—the assumption that backing out of the treaty would not be in Russia's "national security interest" concerns me. I don't think we can afford to hedge our bets of what Russia, or, for that matter, Iran, China, North Korea, may or may not do. I think we deserve a robust missile defense strategy that fosters trust and security, and not shape our actions to please Russia, which is not, in my view, interested in securing our national defense. So, I would urge you to continue to pursue, aggressively, all of the means available to assure that we do have the defenses that would be necessary, in a timely fashion, to protect our critical allies, as well as our country—our continental United States.

START TREATY—UNITED STATES AND RUSSIA COOPERATION

And I thank you.

Chairman INOUE. Thank you very much.

Senator Feinstein.

Senator FEINSTEIN. Thank you very much, Mr. Chairman. And congratulations on becoming a grandfather.

Chairman INOUE. I thank you.

Senator FEINSTEIN. I think that's wonderful.

General, let me just compliment you on your testimony. You were very straightforward and very direct, and I just want you to know that it's very much appreciated.

Just to follow up on Senator Bond's comments—and he and I work closely together on the Intelligence Committee—I had the opportunity to go to Geneva in November, with Senator Kyl, and to meet with both the Russian team and our team during these negotiations and spend some time with Ambassador Antonov. Two days ago, the chairman of the foreign affairs committee of the Federation Council, Mikhail Margelov, and also the vice chairman, met with me. This is the body that would ratify the treaty. It's the upper house. The Duma is the lower house. And so, it must go to the Federation Council. I had a very positive meeting with him, and really felt that there was a new voice in Russia. Now, this, of course, is the civilian voice, not the military voice. But, a real understanding of what was trying to be achieved, in terms of building trust and confidence between our two countries and, I think, a recognition that this is a different era and that all of these nuclear weapons, and the size of them, and the numbers of them, really do present jeopardy to both countries' in the long term. So, I was very heartened by that response.

I have read the treaty. I have read the preamble. I have read our reaction to it. And just so that the record is clear, let me ask this question. Does anything in the proposed treaty interfere with your plans regarding missile defense?

Senator SHELBY. No, Senator.

Senator FEINSTEIN. Thank you.

What is your interpretation of the new treaty and related unilateral statements made by Russia and the United States, with respect to missile defense? Are they similar to what was made before the first START Treaty?

General O'REILLY. It is my understanding they are. As was—has been mentioned before, that we have had similar unilateral presentations made by both countries in many of our previous treaties, such as the ABM Treaty, which we pulled out of, and we saw it wasn't in our national interest, because it did interfere with our plans to defend ourselves from the growing proliferation of missiles, which we saw. So, no, I don't see anything distinctively different.

I do think this is an opportunity, though. As you said, Senator, I have said many times, in Moscow and other capitals around the world, with engaging with the Russians, that we do have opportunities to work with them, because the missile threat—proliferation of missiles—threatens them as it threatens us. And there are great opportunities for us to cooperate in sharing our sensor data, our future research and development, and our command and control activities and exercises, in order to build confidence, between both sides, that we're not threatening each other, but we are building ourselves a defense against the proliferation of these missiles.

#### START TREATY

Senator FEINSTEIN. What advances in missile defense technology do you think would prompt the Russians to threaten to withdraw from the treaty?

General O'REILLY. My understanding is that they thought it would undermine the strategic balance between our offensive capability and their offensive capability.

#### EUROPEAN LAND-BASED VERSUS SEA-BASED DEFENSE

Senator FEINSTEIN. Thank you. I think that's correct.

Let me switch to a—different areas. A lot has been discussed in the media about the decision to shift the focus from a European land-based defense strategy to a medium-term sea-based strategy. Now, as a result, the Navy—our Navy—will assume a significant burden in providing the necessary ships, missiles, radars, and related components to really be a credible deterrent against enemy threats and to provide the required defense against actual attacks. Have we assumed new risks in continental Europe or here in the United States by shifting the emphasis away from a ground-based system to a sea-based defense?

General O'REILLY. During our review last year—and we worked extensively with the Navy—the Department of Defense made the determination that there was a need to continue a ground-based capability that had greater range than our mobile systems do, such as THAAD. And in that case, we determined the aegis ashore,

which is taking Navy capability and putting it into a semi-permanent location that could be moved at a later date and that is flexible against threats. But, we do have that capability.

On top of that, though, the Navy also agreed to be the lead service to man and equip and train those operations on the shore. That, in fact, gives the Navy greater capability, because, while the larger pool of common missiles for them to manage between sea and at land, and also for their personnel, who today the—most of the aegis assignments are at sea, and this gives the Navy leadership the opportunity to rotate between land assignments and sea assignments. And there's a tremendous economical benefit of having one capability work both at land and at sea.

We're also increasing our number of aegis ships that have ballistic missile defense capability. Last year's budget was for 27 ships. This year we're proposing 38 ships to also address that issue.

#### LAND-BASED AEGIS

Senator FEINSTEIN. Thank you.

What land-based requirements remain in Europe for the implementation of the new sea-based missile system?

General O'REILLY. The countries of Poland and Romania have both indicated that they would be willing to host our aegis ashore system. So, as we increase the capability for aegis at sea with newer missiles that we currently have in development, including the one with the Japanese, we will have that capability on the land, and that will provide very large protection over Europe. We believe, with the—our estimates and our technical evaluations indicate, with the latest missile for aegis, the aegis SM-3 IIB, from those two sites alone, you can protect all of NATO.

Senator FEINSTEIN. So—and I am extrapolating here, and please disabuse me of the notion if it's incorrect—you are essentially saying that this new system offers a much better umbrella of protection.

General O'REILLY. For the threats to Europe, it definitely provides a much greater protection. Our concern was, we—with the previous approach was, we would never be in a position, or we would not be in a position, to defend the United States, anyway, from Europe, because of our commitments under NATO to defend the European cities if they were attacked with short-range or medium-range missiles that do exist today. We wouldn't have those 10 missiles available to defend the United States. So, we believe that the approach we have taken assures us to have capability to defend our homeland, but also greater protection over Europe, especially in southeastern Europe today that is under the threat of ballistic missiles from the Middle East.

Senator FEINSTEIN. Is it fair to interpret that answer as "yes"?

General O'REILLY. Yes. Yes, ma'am.

Senator FEINSTEIN. Thank you.

Thank you very much, Mr. Chairman.

Chairman INOUE. Thank you very much.

#### ADDITIONAL COMMITTEE QUESTIONS

And thank you, General O'Reilly, for your testimony. It's been very helpful.

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

QUESTIONS SUBMITTED BY CHAIRMAN DANIEL K. INOUE

AEGIS STANDARD MISSILE ACQUISITION

*Question.* I continue to be impressed by the success of the Aegis missile defense program. I am concerned, however, that MDA is stopping production of the SM-3 Block IA missile prematurely. The Navy and the Combatant Commands want more of these missiles deployed, but there are just not enough. This Committee provided funding to buy 6 additional Block IA missiles in fiscal year 2010, but due to the continued delay in testing of the follow-on missile, there will be a production gap that compounds the shortage of fielded missiles. I understand that you are looking at alternatives for extending production of the Block IA missile. Can you please update us on the progress of those plans?

*Answer.* In developing the fiscal year 2011 budget request, the Missile Defense Executive Board (MDEB) balanced the need for building missile inventory with continuing capability development of the next version of the SM-3. The SM-3 Block IA production line is in the final phases of production before shifting to the Block IB. The SM-3 Block IA unique suppliers begin going out of qualification in May/June 2010 (see figure 1 of attachment 1). First discussed in 2008, it was determined that this approach was acceptable and appropriately balanced risk.

*Discussion.*—The first flight test of the SM-3 Block IB (“FTM-16”) is in late March 2011. If a decision were made to continue SM-3 Block IA production, there are a range of options for maintaining a production line and vendor base for the SM-3 missile, numbered 1 to 4 below. These options range from buying spare parts to procuring additional SM-3 Block IAs.

As of the date of this response, unique SM-3 Block IA vendors have not had work for over 6 months and are losing qualification. Loss of supplier qualification will add \$53.5 million additional cost to the numbered options below to execute if orders are planned by the end of CY 2010.

- Procure only spare parts in quantities which preserve supplier qualifications, fiscal year 2010 estimated additional cost of \$60–70 million for 12 SM-3 Block IA “KV kits.” These KV kits would be full “pulse mode” capable and could be used to swap out the first eight SM-3 Block IA KVs that were limited to “sustain mode” operation or provided to the U.S. Navy as additional spares for SM-3 Block IA requalification. If ordered, these additional missiles would sustain the vendor base through May 2011.
- Combine with fiscal year 2010 additional procurement funding (\$57.6 million), procure 10–12 more SM-3 Block IA, fiscal year 2010 estimated additional cost of \$60–80 million, plus \$10 million of fiscal year 2010 RDT&E to re-host Central Processing Unit (CPU)2. Ordering 10–12 more missiles would sustain the vendor base through May 2011.
- Procure a mix of new missiles and KV kits to refurbish missiles; fiscal year 2010 estimated additional cost of \$120–150 million, plus \$10 million of fiscal year 2010 RDT&E to re-host CPU2. This option is a hybrid of the first 2. It would sustain the vendor base through October 2011.
- Procure 36 more SM-3 Block IA missiles to keep vendors qualified over a longer term; estimated additional cost of \$345–375 million, including \$15 million RDT&E fiscal year 2010 to re-host CPU2 and conduct design verification tests of other parts. This would require a modification to our existing SM-3 Block IA Justification and Authorization (J&A). This option would continue SM-3 Block IA into fiscal year 2012.

THEATER HIGH ALTITUDE AREA DEFENSE (THAAD)

*Question.* I understand that there is a Failure Review Board investigating a faulty component on the THAAD interceptor. Due to the faulty part, THAAD production is on hold. What is the current impact to the program, and how will it affect delivery of the THAAD batteries to the Army?

*Answer.* The THAAD program has completed the manufacturing for all THAAD fire control and launcher ground components for the first two THAAD batteries. However, THAAD production interceptor deliveries have been delayed.

During November 2009, in-process test failures were experienced within an optical switch during production of ignition system components for the initial lot of THAAD tactical interceptors. A Failure Review Board (FRB) was convened to assess the

cause of these failures. The FRB concluded that the current switch design is sensitive to contamination introduced during the manufacturing process. The switch vendor completed implementation of production contamination reduction processes and procedures and reopened the optical switch production line on May 11, 2010. The current production schedule for the first THAAD interceptor projects a first quarter fiscal year 2011 delivery.

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QUESTIONS SUBMITTED BY SENATOR BYRON L. DORGAN

*Question.* What are the 2011 plans for the Airborne Laser research and development program? What are some of the compelling new high energy laser technologies that have been or may be demonstrated?

*Answer.* The Airborne Laser Test Bed (ALTB) is the subject of a SECDEF-directed study by the Director of Defense Research and Engineering (DDR&E), Cost Assessment and Program Evaluation (CAPE), and High Energy Laser Joint Technology Office (HEL JTO) to shape the future of the platform. The study is due to the DEPSECDEF in June 2010 and will describe the best use of the ALTB in flight and ground tests to characterize high-energy laser beam propagation and to further investigate emerging high energy laser technologies in their implementation environment.

Two new laser technologies are the Enhanced Track Illuminator Laser (ETILL) technology for kilowatt-class laser tracking, and the Diode Pumped Alkali Laser (DPAL) technology which has the potential for scaling to megawatt-class power.

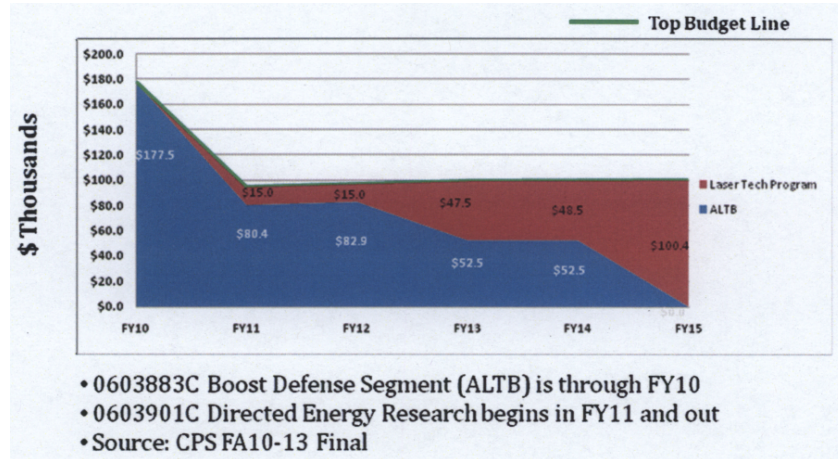
ETILL is a kilowatt class replacement for ALTB's current Track Illuminator Laser (TILL) for improved active tracking of targets at extended ranges. ETILL is 2.5 times more powerful than the TILL and has 4–5 times better beam quality, enabling an approximate 400 percent increase in tracking range. ETILL is the first cryogenically cooled diode-pumped solid state laser designed to operate in an aircraft environment. The system is currently entering laser performance testing and could be integrated onto ALTB within 1 year.

DPALs are a new class of lasers that combine the benefits of solid state and gas lasers. DPALs are electrically powered like solid state lasers, but have a gas lasing medium that can be flowed for scaling to higher power while maintaining good beam quality. Unlike the Chemical Oxygen Iodine Laser (COIL) High Energy Laser (HEL) currently used on the ALTB, the gas in a DPAL would be contained in a closed cycle so that no chemicals would be consumed or required for operation. DPALs can convert electrical energy to laser energy very efficiently. DPALs have been demonstrated with output powers in the hundreds of watts and DPAL scaling to the multi-kilowatt power level in the laboratory is scheduled to be demonstrated by the end of 2010 at the Lawrence Livermore National Laboratory. Subsequent scaling to a megawatt-class DPAL in the laboratory would require several more years.

*Question.* What is the Department of Defense's long term strategy and financial budget for this platform?

*Answer.* Consistent with the SECDEF's direction, the Airborne Laser Test Bed (ALTB) will transition to a directed energy test bed to conduct high energy laser experimentation. The ALTB is the subject of a SECDEF-directed study by the Director of Defense Research and Engineering (DDR&E), Cost Assessment and Program Evaluation (CAPE), and High Energy Laser Joint Technology Office (HEL JTO) to shape the future of the platform. The study is due to the DEPSECDEF in June 2010 and will describe the best use of the ALTB in flight and ground tests to characterize high-energy laser beam propagation and to further investigate emerging high energy laser technologies in their implementation environment. This report will serve as the basis for a long-term strategy for ALTB.





*Question.* Who is the DOD lead for cruise missile defense? Summarize what is currently being done to protect our deployed forces and our homeland against the cruise missile threat.

*Answer.* The Missile Defense Agency is chartered to develop ballistic missile defense capabilities. The Services are responsible for the development of defenses against cruise missile and air-breathing threats. DEPSECDEF on July 22, 2008 designated USSTRATCOM as the Air and Missile Defense Integrating Authority.

#### QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

*Question.* In an interview with Deputy Under Secretary of the Air Force for Space Programs Gary Payton, published in Space News on April 19, 2010, Dep. Under Secretary Payton concluded that the President's new direction for NASA would have a small, but manageable, impact on Navy and Air Force ballistic missiles, and only a "trivial impact" on DOD space launch capacity.

Do you share Deputy Under Secretary Payton's conclusions? What impacts do you believe the President's new direction for NASA has on the Department's space and missile programs?

*Answer.* MDA is working closely with the Air Force, NASA and other members of the Solid Rocket Motor (SRM) Interagency Task Force (IATF) to develop a consolidated assessment of the impact of NASA's new direction on the industrial base and develop a roadmap which is due to Congress in June 2010.

*Question.* Which major ongoing Department of Defense programs promote continued development of solid rocket motor development?

*Answer.* For large SRM (>40 inch diameter), there are currently no development efforts among the Services and agencies in the FYDP. However, MDA is developing a 21 inch diameter (small) solid rocket motor for the SM3 IIB second stage and possibly third stage.

*Question.* What is the long-term plan to sustain the high-tech solid rocket motor industrial base?

*Answer.* MDA's long-term plan to sustain the high-tech Solid Rocket Motor (SRM) Industrial Base (IB) includes supporting the SRM IB Inter-Agency Task Force (IATF) development of a SRM sustainment plan. MDA believes that we need:

- To work with industry to "right size" and align capacity to reality;
- To ensure long-term viability of small and large SRMs (missile defense and tactical systems);
- To closely monitor the already fragile critical sub-tier supplier base; and
- Propose plans to retain SRM expertise and facilities for future contingencies.

## QUESTIONS SUBMITTED BY SENATOR THAD COCHRAN

## ISRAELI COOPERATIVE PROGRAM SUPPORT

*Question.* General O'Reilly, the United States and Israeli governments have been working together to develop an upper-tier component for the Israeli missile defense program. I understand the Israelis are pursuing the enhanced version of Arrow, Arrow-3, and are required to meet knowledge points to measure their progress. Can you give us an update on Israel's progress in relation to meeting those knowledge points?

*Answer.* The Arrow-3 development program continues to make significant progress. Three Knowledge Points (KPs) have been successfully completed, two KPs have been executed and are under review by MDA, and three additional KPs are scheduled to be executed by the first quarter of fiscal year 2011. A Critical Design Review is currently scheduled for June 2010.

MDA prepared a classified report on Arrow-3 Knowledge Points which was delivered to Congress by the Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L) on April 12, 2010. The report provides detailed information on the knowledge points, schedule, and assessment of program milestones.

MDA has provided a separately required Arrow-3 Knowledge Point Report to Congress that is currently under review within the Department. This report will provide the most current KP status information and delivery is expected by the end of June 2010.

## SEA-BASED ASSETS

*Question.* General O'Reilly, it appears that there is an insufficient inventory of Ballistic Missile Defense capable Aegis-class ships to implement the President's Phased Adaptive Approach strategy for missile defense in Europe and the Middle East and to address concerns in other parts of the world, including North Korea. Earlier this year, Admiral Walsh, the Commander of the Pacific Fleet, indicated that the U.S. Pacific Fleet had a decline in ship inventory due to supporting missions in Iraq, Africa, and battling increased incidents of piracy.

General, given this decline in ship inventory in the Pacific and other regions and the increased demand associated with the President's new strategy, how has the Missile Defense Agency and the Navy been working to alleviate the shortfall in Ballistic Missile Defense capable ships? Is there any consideration being given to building or modifying meaningful numbers of additional Ballistic Missile Defense capable Destroyers to address these shortfalls in a timely fashion?

*Answer.* Yes, MDA and the U.S. Navy plan to increase the number of BMD capable ships from 21 today to 38 by the end of 2015 as stated in the Additional Requirements for Investment in Aegis Ballistic Missile Defense Report to Congress (RTC) dated April 2010. In support of this plan, Navy has requested a transfer \$15 million of fiscal year 2010 funds to the Missile Defense Agency (MDA) to accelerate the number of Aegis BMD ships. The reprogramming package was forwarded to Congress in April 2010. In order to further complete these accelerated BMD ship upgrades the Navy has also requested the transfer of \$74 million in President's budget 2011 from the Navy to MDA.

## NATO—ACTIVE LAYERED THEATER BALLISTIC MISSILE DEFENSE

*Question.* General O'Reilly, the Quadrennial Defense Review released earlier this year stresses a focus on building partnerships with overseas allies. I understand we are beginning to integrate different components from various NATO allies to form a tiered active ballistic missile defense system. Can you highlight the United States' contribution and cost for this effort and does it replace what we already have established with these allies?

*Answer.* MDA has been working with NATO for more than a decade. Over the years, the MDA and NATO have worked collaboratively on developing documentation and demonstrating interoperability. This ongoing work has gained significant momentum since NATO established the Active Layered Theatre Ballistic Missile Defense Programme Office (ALTBMD PO) in 2005. This work is the foundation of the efforts to develop interoperable missile defense capabilities with our NATO allies.

Specifics include:

- Current MDA budget for this is fiscal year 2010: \$2.75 million; fiscal year 2011: \$3 million; fiscal year 2012: \$3 million.
- MDA and the ALTBMD PO jointly developed Interface Control Documents (ICDs) for real-time and non-real-time information exchange.

- Real-time ICDs document the exchange of situational awareness information between NATO Air Command and Control System and the U.S. C<sup>2</sup>BMC, Aegis BMD, and Patriot systems.
- Non-real-time ICDs document the exchange of planning and tasking information between U.S. and NATO missile defense command and control systems.
- MDA and NATO have conducted bi-lateral testing of real-time information exchange between C<sup>2</sup>BMC, Aegis BMD, and Patriot systems and a prototype of the NATO Air Command and Control System.
- Non-real-time exchange of planning and tasking information has been demonstrated between the U.S. C<sup>2</sup>BMC planner and the NATO planning and tasking tool (PlaTo).
- MDA and NATO ALTBMD PO are developing the necessary testing infrastructure.
- International Point of Presence (IPOP) laboratory serves as the U.S. interface between NATO missile defense Integration Test Bed in The Hague, The Netherlands and U.S. missile defense laboratories.

The United States and NATO have begun discussions for a Memorandum of Agreement regarding modifications at Ramstein, AFB, to be the operational communications interface point. Information exchange between U.S. Phased Adaptive Architecture systems (via C<sup>2</sup>BMC) and ALTBMD systems will occur between the U.S. teleport on Ramstein and the NATO General Communication System at Ramstein. The United States has built bi-lateral communications enclaves for several Host Nations. Expanded connectivity with Allies is anticipated to be via Ramstein.

A strong foundation has been documented, built and tested for interoperability between U.S. and Allied forces. Our current efforts do not replace what we have established with our NATO allies; it leverages our past efforts with the existing and planned NATO command and control systems. Subsequent work will build upon this foundation.

#### SM-3 MISSILE GAP

*Question.* General O'Reilly, I understand a major component of the Missile Defense Phased Adaptive Approach strategy involves the use of Ballistic Missile Defense-capable Aegis ships equipped with SM-3 missiles. I have been informed that while the Missile Defense Agency continues developing the newest and more capable version of the SM-3 missile, the Block IB, the main production line for the current version, the Block IA, is shutting down. What are the costs associated with restarting the production line for the updated SM-3 missile once the line for the old missile has been shut down, and have you or do you plan to budget for these additional costs?

*Answer.* The overall production line for the Standard Missile-3 (SM-3) missile will not shut down. The last SM-3 Block IA is scheduled for delivery in fiscal year 2012, at which time the SM-3 production line will transition from the Block IA configuration to the Block IB configuration, completing in 2013. In the interim time period, we will cease procuring unique Block IA parts and start buying unique Block IB parts. After Calendar Year 2010, the majority of Block IA unique suppliers will be out of qualification. The SM-3 Block IB production line will require some new, different test equipment and assembling processes.

There is no cost to restart the SM-3 production line as work on the line (either production or transition) never ceases. The cost associated with transitioning the SM-3 production line is \$55 million over 3 years. President's budget 2011 contains a portion of that cost.

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#### QUESTION SUBMITTED BY SENATOR RICHARD C. SHELBY

*Question.* General O'Reilly, at the present time, only two U.S. companies produce solid rocket motors for all of our nation's needs, and only one company manufactures their most key ingredient: the oxidizer. These three companies support all missile defense programs, plus all strategic missiles, military, and commercial space lift capabilities, NASA human spaceflight systems, and the entire cadre of tactical missiles available to today's war fighter. Since the early 1990s, NASA has served as the anchor tenant for this industry, providing a stable backbone to offset the often inconsistent production requirements of military and commercial programs. However, demand for products made by the solid rocket motor industry has been in steady decline for many years, and is right now experiencing a further dramatic drop with the completion of the Minuteman III Propulsion Replacement Program, the retirement of the Space Shuttle, the termination of the Kinetic Energy Interceptor, and the production slowdown of Ground-based Midcourse Defense intercep-

tors. Now, NASA has announced the cancellation of the Constellation program. This will have a significant impact on industry's ability to continue to safely, reliably, and affordably produce solid rocket motors to meet our nation's needs. What plans has the Missile Defense Agency made to sustain this industry, to continue to meet current deployed and future anticipated missile defense needs? I recognize that, in response to direction from the Congress last year, that the Office of the Secretary of Defense is developing a roadmap on how to best sustain this industry. What inputs have you or your agency provided to that ongoing study? Have you had any conversations with other government agencies, such as NASA, about the need to sustain this industry, and if so, please share with us any concerns you may have expressed about the impact of NASA's decision on your ability to meet current and future missile defense requirements?

Answer. MDA's long-term plan to sustain the high-tech Solid Rocket Motor (SRM) Industrial Base (IB) includes supporting the SRM IB Inter-Agency Task Force (IATF) development of a SRM Sustainment Plan. MDA believes that we need:

- To work with industry to “right size” and align capacity to reality;
- To ensure long-term capability to produce small and large SRMs (missile defense and tactical systems); and
- To closely monitor the already fragile critical sub-tier supplier base.

MDA is working closely with the OSD Solid Rocket Motor (SRM) Industrial Base (IB) Inter-Agency Task Force (IATF) on the development of an integrated roadmap that includes DOD, MDA and NASA requirements. MDA's participation in the IATF Working Group (IWG) involves hosting the IWG meetings, participating in industry site visits and assessments and

#### SUBCOMMITTEE RECESS

Chairman INOUE. The subcommittee will stand in recess until Wednesday, May 12, and at that time we'll receive testimony from the Secretary and Chief of Staff of the Air Force to discuss the Air Force's fiscal year 2011 budget request.

We'll be in recess.

[Whereupon, at 11:20 a.m., Wednesday, April 21, the subcommittee was recessed, to reconvene subject to the call of the Chair.]